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ABSTRACT

Volume I of the final report of the Florida State University clinical teacher model, a diagnostic prescriptive approach to instruction of the mildly handicapped, describes the project's overview, background, objectives, and products. Reviewed are the historical trends toward individualized instruction and illustrated is the management network for the clinical teacher project. Related literature is analyzed including the changing role of the teacher in individualizing instruction. An orientation to the clinical teacher curriculum details directions for students using the individualized, performance based instructional modules, and summarizes course requirements and student responsibilities. Provided in addition to the conceptual model of clinical teacher competencies are performance based, individualized instruction models on such topics as assessing pupil behaviors and prescribing pupil objectives and instructional strategies. The final two sections, constituting almost half the document, present individualized curricula for reading and arithmetic. Individual modules contain information on purpose, behavioral objectives, instructional resources/options/activities and sample test items for such reading skills as phonetics and linguistics, and such arithmetic skills as rational counting and division. (CL)

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THE CLINICAL TEACHER FOR SPECIAL EDUCATION

FINAL REPORT VOLUME ONE: ESTABLISHING THE MODEL

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PREFACE

The FINAL REPORT of the Florida State University Clinical Teacher Model, Special Projects, Prototype, supported by the U.S. Office of Education, Bureau of Education for the Handicapped, is the culminating product of the *establishment* and *evaluation* of an alternative, noncategorical teacher education program for special education. Clinical teaching, i.e., diagnostic and prescriptive teaching, represents the systematic application of the historical aspiration to individualize and personalize the learning and teaching processes for all children. Linking the heritage of the field and current aspirations with contemporary educational technology, the Clinical Teacher Model establishes individualized, performance-based curricula for both teacher competencies and pupil behaviors.

The Training Model and Evaluation Design for the Preparation of the Clinical Teacher for Interrelated Areas of Special Education was developed to test several fundamental assumptions:

1. Mildly handicapped exceptional children, currently categorized as "educable mentally retarded," "learning disabilities," and "emotionally disturbed," have *common* desired academic and social behaviors necessary for succeeding in the regular classroom.
2. *Generic* teacher competencies of observation, diagnosis, intervention, and evaluation are requisite skills for individualizing instruction necessary to produce the behaviors.
3. Individualizing instruction, or clinical teaching, for both teachers and their children, can be established and evaluated first by documenting the fact that the teachers have attained the pre-stated competencies, and second by monitoring the behavioral gains achieved by the exceptional children they serve.

The FINAL REPORT is presented in two volumes.

Volume One: Establishing the Model contains an introduction, background, objectives, and products of the Project:

Welcome to the System: Orientation and Guide to the Clinical Teacher Curriculum

Clinical Teacher Competencies for Special Education: An Individualized Performance-Based Teacher Education Curriculum

Clinical Teacher Desired Pupil Behaviors: An Individualized Reading Curriculum

Clinical Teacher Desired Pupil Behaviors: An Individualized Arithmetic Curriculum

Volume Two: Evaluation of the Clinical Teacher Model provides the formative and summative evaluation strategies and data documenting the effectiveness of the program. In addition, the volume contains the Documentation and User's Guide to the Computer Management System for the Clinical Teacher Curriculum.

Representing more than a decade of planning, research, and development, the prototype curricula have been field tested, revised, documented and evaluated as to their effectiveness for the populations served. Although originally critical of the existing "categorical" provisions for serving children and of the preparation of teachers, the investigators are aware of the various limitations inherent in generating alternative patterns amid established institutional structures. This report of the development of the Clinical Teacher Model, in a relatively unstudied area of teacher education, required conceptualizations, model building, and systematic design of instruction. It is not possible to identify all or even most of the unique contributions made by numerous individuals during the past seven years at Florida State University. However, key individuals are noted for their specific contributions to the project, and above all, for their willingness to be risk-takers in a hazardous and uncharted course.

First, we are particularly appreciative of Ms. Josephine L. Taylor, Project Officer, Division of Personnel Preparation, Bureau of Education for the Handicapped, U. S. Office of Education, for her advocacy and sustaining support. We should also like to recognize our highly creative and motivated colleagues within the University who generously shared their insights and time during the early conceptualization and design stages of the Model, and who have maintained continuing interest in the project: Professors Norman Dodl (Teacher Education); F. J. King (Research and Evaluation); and Charles Madsen (Behavioral Psychology). To former colleagues Henry Lippert and Duncan Hansen for their assistance in the development of the computer management system, and particularly to computer analysts Lawrence Ghidoni, Mark Hapner, and Ahmed Dia, who operationalized the system, we express our grateful appreciation.

To the fifteen juniors initially entering the program in 1970, and to the subsequent entering classes of students experiencing the promises and problems of instructional research and development, we express our appreciation for their participation in several aspects of the design, field trials, and evaluation activities. We especially wish to acknowledge the individual students who substantially contributed to the development of the Individualized Reading Curriculum: Kenneth F. Broska, Karen T. Hodges, Francis J. Patrick, and Gloria M. Williams; and to the Individualized Arithmetic Curriculum: Kathleen C. Vloedman, Karla A. Colonna, Francis J. Patrick, Amy S. Phillips, and Denise R. Weinstock.

Mrs. Rhea Schwartz, Graduate Research Assistant, reviewed the literature for original attempts to individualize instruction for both pupils and their teachers and produced the Review of the Literature and the Conceptual Matching Model (Welcome to the System, p. 82) which serves as the visual and descriptive display of the clinical teaching system. Her continuing interest and support for "modeling" teacher behaviors was a constant reminder to the staff that "teachers teach the way they were taught." As Hunt (1971) has said:

> The training of teachers, like the education of children, requires adaptation to individual differences. Teacher trainees vary enormously in skill level and in personality, yet most programs for training teachers are designed for an average trainee, with few options to accommodate trainee variation. A teacher training program which provides alternative experiences modulated to trainee differences, is not only more likely to produce an efficient direct effect, but it will also be indirectly beneficial in providing the teacher trainee with an experimental example of what is meant by individualizing instruction and "meeting the needs of the student." (p. 67)

The authors express appreciation to Phillip L. Martin, Director, Florida State University Press, and Mary Beth Culp for their editorial and technical assistance in the preparation of this Final Report.

Louis Schwartz and Andrew Oseroff

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CHAPTER 1

CLINICAL TEACHING

The establishment and evaluation of the Clinical Teacher Model for Interrelated Areas of Special Education at Florida State University was supported by the Bureau of Education for the Handicapped, U.S. Office of Education, as a Special Projects, Prototype, under provisions of P.L. 91-230. The outcome of the research and development activity is a new and viable non-categorical teacher education program, designed, field-tested, and documented as an alternative approach to the manpower preparation patterns in special education. Combining the existing separate categorical areas of "mental retardation," "learning disabilities," and "emotionally disturbed" into an integrated and common teacher education program, the Model utilizes instructional technology and evaluation research strategies for both implementing the concept and documenting the efficacy of this alternative strategy. The

Model offers individualized and personalized performance-based instructional curricula for both the Clinical Teacher competencies and the desired academic and social behaviors for mildly handicapped exceptional children. Formative and summative evaluation objectives and activities were developed and conducted from the early design of the project through the follow-up year on the graduates of the program. Evaluation research, essential to consumers of new products, also provides alternative experimental designs and methods for studying the effects of teaching and learning in actual public school classroom environments.

Initial concepts underlying clinical teaching were developed during the mid 1960's in New Jersey (Schwartz, 1967 a, b) during an era of enormous growth of categorical programs and services for exceptional children and their teachers. This period was marked by an awareness of the persistent teacher shortage, the recognition of gaps between available knowledge and actual classroom practice, and a growing concern for the efficacy of special education. During the 1960's, judicial decisions and legislative mandates dramatically altered existing provisions for exceptional children. Emerging from this era were conceptual shifts and a search for viable alternative strategies in special education.

Marland (1971) reaffirmed our nation's commitment to provide complete and equal educational opportunities for all exceptional children and youth by 1980, indicating that of the approximately seven million handicapped children identified as requiring special education, only forty percent were receiving any such service. Davis and Wyatt (1971) reported that although an oversupply of teachers exists in our public schools, there remains a critical shortage of teachers in both special and regular education who can serve handicapped children. In addition to the continuing needs of exceptional children and their teachers, alternative special educational provisions emerged during this period stimulated by "... a growing level of disappointment or disillusion with the existing system" (Gallagher, 1971, p.1). These quantitative and qualitative concerns for the special education of exceptional children and their teachers were not new (Cruickshank and Johnson, 1958; Mackie, 1962; and Kirk, 1965). Gradually support for improvement in "professional preparation programs" (Heller, 1968) and programs for the children served (Reynolds, 1971) gained momentum and generated a variety of alternative models and practices (Schwartz, et al., 1972; Deno, 1973).

The development of the Clinical Teacher Model was initiated in Florida (Schwartz, 1971) under provisions of a Program Development Grant (P.L. 85-926) during 1969-70. Design of the prototype, individualized instructional performance-based modules, a computer-management system, and evaluation strategies by the interdisciplinary project team marked the first implementation year, 1970-71. Field testing, revision, and evaluation of the Model constituted project activities for 1971-74. Documentation, diffusion, and dissemination activities completed the project during 1974-75.

AN OVERVIEW

Linking the heritage of special education with contemporary instructional systems and technology, the Clinical Teacher Model serves as a continuing attempt to define, demonstrate, and document an "effective teacher" for exceptional children with individual learning and behavioral differences. *Clinical teaching,* i.e., diagnostic and prescriptive teaching, represents the historical aspiration to *individualize instruction* for meeting the unique and personalized needs of the individual learner.

Recognizing the importance of these generic teaching competencies, the National Council for Accreditation of Teacher Education (1970) adopted the following standard:

> *1.3.3 Teaching and Learning Theory with Laboratory and Clinical Experience.* As distinguished from the Content for the Teaching Specialty and the Humanistic and Behavioral Studies, there is a body of knowledge about teaching and learning that should be the basis for effective performance. If teaching is to be more than a craft, teachers need to understand the theoretical principles which explain what they do. For this reason, the study of teaching and learning theory is included as part of the professional studies component. However, like the study of other empirical theory, the study of teaching and learning theory requires laboratory experiences through which the student may conceptualize principles and interpret their application to practical problems. Much of what has been called "general methods" and "special methods" can therefore be taught as the application of teaching and learning theory.
>
> Whereas the study of teaching and learning theory provides the prospective teacher with principles of practice and the laboratory exercises illuminate and demonstrate these principles, clinical

> experience confronts the student with individual cases or problems, the diagnosis and solution of which involve the application of principles and theory. Certain kinds of problems (such as planning, selection of learning resources, motivation, presentation, diagnosis of learning difficulties, individualization of instruction, classroom management, and evaluation) represent types of classroom situations. Clinical teaching involves the student in the diagnosis and "treatment" of the individual problem, under the guidance of an experienced teacher. Because it is now possible to simulate many of these situations or to display a selection of real problems electronically—and because the prospective teacher's efforts can be recorded, viewed, and reviewed—it is now feasible to give much effective clinical experience outside the school classroom. (p.5)

Research on teaching, to document the "effective teacher," has paralleled the search for a strategy that can not only be realistically based within an actual classroom situation, but which also can be scrutinized by other researchers through replication studies.

ESTABLISHING THE MODEL

Several common assumptions and practices have peristed in the education of exceptional children from the early eighteenth century to the present. Rousseau (1712-1788) proposed reform in education; Pereire (1715-1780) worked with the deaf; Itard (1774-1834) and Sequin (1812-1880) made proposals for the education of the retarded. Witmer (1897) emphasized teacher training as individual treatment; in more recent times, Laycock (1934) spoke of the teacher as a diagnostician; Kirk and Bateman (1962) emphasized diagnosis and remediation of learning disabilities; and Smith (1968) clinical teaching for the retarded. Although concerned with various categories of handicapping conditions and representing the various disciplines of medicine, psychology, and education, all have practiced and urged the adoption of the same approach—*clinical teaching. Clinical teaching,* as originally described by Pereire over two hundred years ago in teaching the deaf "oral speech," significantly influenced the development of special education. Doll (1967) has stated:

> Pereire, therefore, was in the main stream of progressive educational thought of his day when he formulated for the deaf the principles which have since become axiomatic in the education of

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> the retarded—scientific observation, use of the case history, adaptation of methods to the individuality of the pupil, sensory substitution and sensory reinforcement, progress through developmental sequences, education in terms of social needs, and the principle of proceeding from the known to the unknown. (p. 176)

These scientific pedogogical techniques, introduced by the physician Pereire, have periodically but persistently reappeared in educational *individualized instructional* programs. Rousseau's *Emile* influenced Johann Heinrich Pestalozzi's "historic series of educational experiments." Both Rousseau and Pestalozzi expressed their fundamental belief in the individual learner and their conviction that education should proceed in terms of the "natural interests of the child" and in a "series of steps psychologically connected with the learner's development" (Saettler, 1968, pp. 31-32). Pestalozzi's effect on American education during the formative years of the mid-nineteenth century was most notably marked by large scale adoption of individualized "object teaching" by school systems in Oswego, New York (1860) and Quincy, Massachussetts (1875), which widely influenced teaching methodology in the United States. Shortly afterwards, individualized instructional systems for both children and their teachers appeared at San Francisco State Normal School (Burk, 1912); Winnetka, Illinois Public Schools (Washburn, 1919); Dalton Public Schools, Massachussetts (Parkhurst, 1920); and at the University of Chicago High School (Morrison, 1925). Saettler (1968) identified elements of these early individualized instructional systems which included:

> individualized instructional materials containing self-checking devices and diagnostic tests;
>
> self instructional bulletins in arithmetic, geography, grammar, etc;
>
> self-corrective practice materials (workbooks);
>
> analysis of course content into specific objectives — [development of] a plan of instruction that would enable the learner to master each of the objectives at his own rate;
>
> differentiation of assignments for different ability levels;
>
> [plans designed to] pretest, teach, test the results, adapt procedure, teach and test again to the point of actual learning. (pp. 62-66)

Today, historians of special education continue to plead for a better understanding of early work in the field in order to view contemporary problems in their proper perspective, as well as to avoid costly duplication of efforts. Talbot (1964) reviewed Sequin's "diagnostic teaching" pedagogy of over a hundred years ago citing the direct implications for modern educational practice. Doll (1967) advocated the retrieval and dissemination of these significant historical materials for "the conservation of ideas, techniques, and data, or in purely historical terms, the solution of specific historical problems" (p. 182). Balthazar and Stevens (1975) renew the call for the historical perspective as an aid to understanding the current problems and relationships between the emotionally disturbed and mentally retarded.

Considering teacher education programs for special education as a reflection of the general problem of translating theory into practice, the concept of the *Clinical Teacher* for *individualizing instruction* appears to be one of the most persistent and yet elusive ideas in actual curricula design.

EVALUATING THE MODEL

Despite the historical precedents of clinical teaching and individualized instruction, attempts to describe the *effectiveness* of this strategy have defied educational researchers in both special and regular education. Determining the "effects of the treatment for each particular child" or "the educative value of one pedagogical method compared with another" (Binet and Simon, 1905, p.83), has persistently challenged investigators in their search for empirically defining the "good teacher" or "quality education" (Gage, 1963; Blatt, 1966; Jones, 1966; Dubin and Taveggia, 1968; Rosenshine and Furst, 1971; Travers, 1973; Blatt and Garfunkel, 1973).

Research on teaching reported during the last twenty years (American Educational Research Association: Committee on Criteria of Teacher Effectiveness, 1953; *Handbook of research on teaching*, edited by Gage, 1963; and *Review of research on education*, edited by Kerlinger, 1973) clearly indicates the frustrations in attempting to determine the "effects of teaching." Furthermore, the complexities involved in conducting scientific research in actual classrooms have been compounded by the realization that *learning* is as critical a process in these investigations as the *teaching* process being studied. According to Gage (1972):

> The two processes must be studied together, as a teaching-learning process. That is, a valid conception of teaching must be tied closely to a conception of learning. How human beings learn should provide much of the basis for our derivations of how teachers should teach. (p. 42)

Pursuing the study of how individual differences among learners interact with varied educational treatments, Cronbach (1957, 1967) stimulated renewed interest among investigators in an area of research referred to as "aptitude-treatment-interaction" (ATI, TTI, or TTTI). Comprehensive reviews of ATI research by Bracht (1970) and Berliner and Cahen (1973) offer "cautious optimism" to a growing cadre of workers who conceptually and methodologically believe that "the TTI approach is a sound paradigm for research on instruction" (p. 85).

Paralleling this general interest in ATI are a rapidly growing number of special education researchers who share this enthusiasm (Reynolds and Balow, 1971; Blackman, 1972; Jones, 1973; and Lilly and Kelleher, 1973). This apparent philosophical compatability between researchers in general and researchers in special education suggests a high degree of promise in studying individual differences and individualized instructional strategies. According to Berliner and Cahen (197[illegible]):

> The areas of reading disability and special education have always had explicit TTI notions. Working with children who have failed to profit from conventional instruction, and believing that the creation of a "mutant" instructional setting could change the achievement levels of students, educators in these special education fields were led to become proponents of instructional approaches that resemble TTI (Fernald, 1943; Younie, 1967). It was precisely these ideas that led to the development of Montessori's (1964) system. Her first pedagogical tasks were the development of unique instructional methods, primarily tactile, for educationally retarded children. (p. 62)

The Clinical Teacher Model offers renewed optimism for the continuing attempt to document the efficacy of an individualized instructional strategy for teachers of exceptional children. Although supportive of the basic search for the validity or truth of the "effects of treatment," the Clinical Teacher Model offers documentation as to the value or efficacy of an "innovative" teacher education program that describes explicit teacher competencies for producing academic and social behavioral gains in mildly handicapped exceptional children. As an initial step, formative evaluation strategies were designed to provide documentation on the effectiveness of the instruction. Summative evaluation required evidence of the effect of instruction on the exceptional children served by the Clinical Teachers. Distinguishing among the variety of educational outcomes of learning, instruction, and policies, researchers and evaluators have described a range of "experimental and quasi-experimental designs" (Campbell and Stanley, 1963) appropriate to the particular question posed. Suchman (1967); Campbell (1969);

Tyler (1969); Bloom, Hastings, and Madaus (1971); Hilgard (1972); Rippey (1973); Kerlinger (1973); and Herriott and Muse (1973); among others, have described and advocated varying the research/evaluation strategy depending upon the issue being investigated.

Blatt and Garfunkel (1973) criticized "the extent to which traditional models have determined the kind of research that is being conducted, rather than models being determined by the nature of the problems studied" (pp. 632-633). These authors suggest "the development of research strategies that are in harmony with discovering and evaluating what actually occurs in classrooms" (pp. 635-636). They further state that "Our goal as educational researchers is to examine the components of the teaching-learning interaction" (p. 651).

APPROACH

Integrating the historical aspirations for individualizing instruction and documenting the effects of education on exceptional children and their teachers, the Clinical Teacher Model unifies several current major conceptual developments with the emerging sophistication of educational technology, performance-based mastery learning, and evaluation strategies (Schwartz, 1967; Deno, 1970; Haring, 1970; Dodl, 1969; Bloom, Hastings, and Madaus, 1971). Planned, designed, field-tested, revised, and evaluated by an interdisciplinary team in an Educational Research Institute, College of Education, Florida State University, the Model represents the concerted effort of faculty, graduate assistants, and students in the program. Allied in this formal venture in teacher education were specialists from Special Education, Elementary Education, School Psychology, Educational Research and Testing, Computer Assisted Instruction, and Instructional Television and Media. "Developmental capital" from the Bureau of Education for the Handicapped, U.S. Office of Education, supported the planning, implementation, and Special Project activities. The Special Projects Manual (1970) stated:

> The purposes of the special project grants are: to plan, to try new models of training, and to evaluate the effectiveness and efficiency of these new models in preparing personnel to work with handicapped children. (p. 2)

For establishing the Model, the interdisciplinary team recommended that the project staff formulate fundamental assumptions, specific goals and objectives, and precise project activities. The project staff, composed of curriculum designer, experimental teacher, and evaluator, adopted and implemented this approach. The key elements of this strategy are presented.

ASSUMPTIONS

The Clinical Teacher Model was founded upon several fundamental assumptions:

1. Special education for *mildly handicapped children* with varying exceptionalties, i.e., "educable mentally retarded," "learning disabilities," and "emotionally disturbed," should focus on *common* desired academic and social behaviors needed to succeed in the "mainstream" of regular education rather than on medical, psychological, and/or social deficits implied by "categorical" classifications and labels.
2. *Generic teacher competencies* necessary for producing these behaviors are the performance skills for individualizing instruction, i.e., *observation and diagnosis* for identifying individual pupil entry levels, learner characteristics, and desired outcomes; *intervention* based upon a match of task, learner, resource characteristics; and *evaluation* of both pupil and curriculum performance for the continuous improvement of learning and instruction. Demonstration of the competencies requires extensive field-based experiences.
3. The eclectic approach in the Clinical Teacher Model enables the teacher, based upon a comprehensive diagnosis of the individual learner, to select and employ a teaching strategy from among a variety of models (developmental, corrective, remedial, behavioral-task-analysis, etc.). The knowledge of and skills in the selection and utilization of the *appropriate* teaching strategy is the critical factor in producing success for exceptional children. The Clinical Teacher judgement necessary for making this appropriate match is the unique outcome of this teacher preparation program. This desired teacher behavior in any special educational setting is what is "special" about special education for mildly handicapped children.
4. Innovation and change in teacher education require "developmental capital" for planning and implementing a transactional strategy among a team of content and process specialists including curriculum designers, experimental try-out teachers, and researchers in both the theoretical and applied aspects of instruction. Above all, the explicit specifications of objectives, criteria, and products are required in order to document the impact of the strategy on the target populations and demonstrate the effectiveness and replicability of the exemplary provisions.
5. The historical attempt by special educators to teach the handicapped has been accompanied by the general search for the "good teacher" of *all* children with individual differences and the individualized instructional strategies for teaching them.

GOALS AND OBJECTIVES

1.0 Project Goals

1.1 To enhance the opportunities for mildly handicapped children with varying exceptionalities to achieve, while retaining or acquiring regular class membership, the educational goals deemed appropriate for the typical student.

1.2 To demonstrate the efficacy of the Clinical Teacher functioning within a resource room and/or other diverse educational settings in achieving the educational goals for the handicapped.

1.3 To train a cadre of Clinical Teachers who can demonstrate the ability to significantly increase the exceptional child's academic and social adaptability to conventional classroom practices.

1.4 To design, implement, and evaluate a model teacher education program for the preparation of Clinical Teachers with the necessary competencies for producing the desired academic and social behaviors in exceptional children.

1.5 To demonstrate viable training practices which can be incorporated into other special education preparation programs in order to:

  1.5.1 Improve the quality of special education personnel and services.

  1.5.2 Alleviate current and projected personnel shortages in special education.

2.0 Project Objectives

2.1 To specify academic and social behaviors which:

  2.1.1 Constitute desired objectives for the normal population of school children.

  2.1.2 Define the target population of mildly handicapped children with varying exceptionalities.

  2.1.3 Define the criteria for return to regular class membership.

  2.1.4 Provide adequate evidence that desired pupil gains have been achieved.

2.2 To develop an operational model of the Clinical Teacher concept which:

  2.2.1 Specifies the tasks to be performed by someone functioning as a Clinical Teacher.

  2.2.2 Describes the general competencies required to perform the tasks of a Clinical Teacher.

  2.2.3 Behaviorally describes each *competency* to be demonstrated as evidence of qualification as a Clinical Teacher.

2.3 To design a model training program for developing the competencies identified as necessary for the Clinical Teacher. The training model will specify and describe:

2.3.1 Criteria for selecting Clinical Teacher Trainees.

2.3.2 The Clinical Teacher curriculum.

2.3.3 The instructional logic employed in the training program.

2.3.4 Tasks prescribed for acquiring each Clinical Teacher competency.

2.3.5 Resources needed for performing various instructional tasks.

2.3.6 Strategies utilized in the selection of instructional activities.

2.3.7 Procedures utilized in selecting multimedia options for instructional events.

2.3.8 The record-keeping and management system used by the program.

2.4 To develop an evaluation design which provides for:

2.4.1 Continuous monitoring of the project and feedback of relevant decision information to project management.

2.4.2 Collection and feedback of formative data concerning necessary and appropriate revisions in:

2.4.2.1 The instructional materials.

2.4.2.2 The Training Model.

2.4.3 Determination of the effectiveness of the Training Model in preparing personnel with the competencies of the Clinical Teacher.

2.4.4 Determination of the effectiveness of the Clinical Teacher in achieving the pre-specified gains in exceptional children.

2.4.5 Relevant decision information for individuals interested in adoption and installation of the Clinical Teacher Model.

2.5 To implement the Clinical Teacher Model and evaluation design in order that:

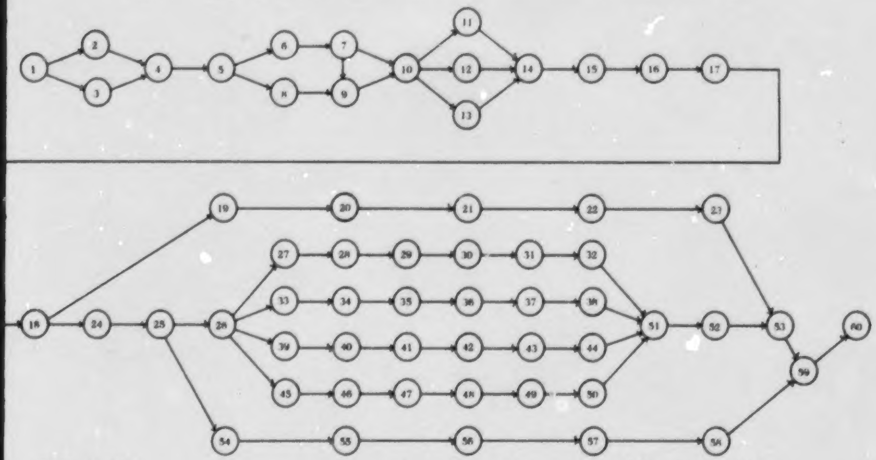
2.5.1 Feasibility of the Model in terms of effectiveness and efficiency can be ascertained.

2.5.2 The Model can be revised to increase its utility as a teacher-training alternative.

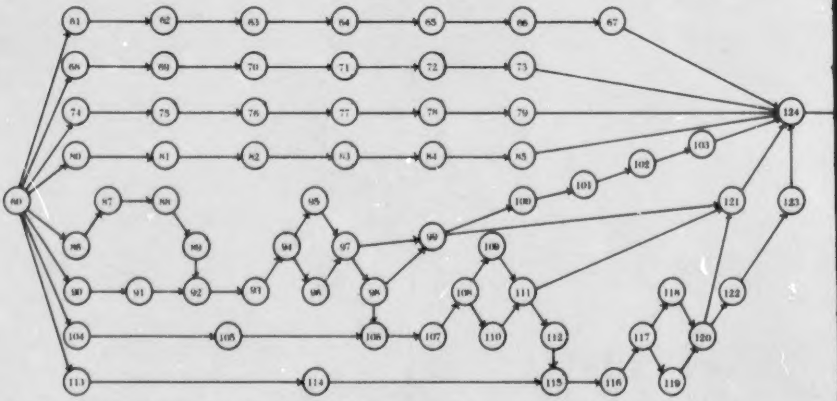
2.5.3 Viable components of the Clinical Teacher concept and its accompanying Training Model can be identified and diffused to other educational institutions.

In order to attain the designated goals of the project, the Clinical Teacher Model has structured its activities, depicted in the following Management Network, in a manner designed to facilitate achievement of the final project objectives.

Fig. 1 Management Network for Clinical Teacher Project



Fall, 1968
PDG Proposal
Sept., 1969
1. Project initiated
2. Relevant literature surveyed
3. Interdisciplinary team organized
4. Rationale for model developed
5. Interrelated area defined
6. Target population described
7. Desired pupil behaviors identified
8. General functions of CT identified
9. Requisite CT competencies identified
0. CT training model conceptualized
1. CT curriculum sequence projected
2. Success criteria specified
3. Implementation activities identified
4. CTM proposal drafted
Dec., 1969
5. CTM proposal submitted
6. CTM contract awarded
7. Interrelated areas organized
8. Project staff employed
9. CTT selection criteria specified
0. First year trainees recruited
1. CTT applications reviewed
2. First year trainees selected
3. CTT orientation conducted
Sept., 1970
4. Design team organized
5. Instructional development system adopted
6. Major CT competencies defined
7. Requisite CTM knowledge specified
8 CTM objectives stated
9. CTM assessment criteria stated
30. CTM performance measures constructed
31. CTM instructional resources selected
32. CTM modules completed
33. Observation skills specified
34. Observation objectives stated
35. Observation assessment criteria stated
36. Observation performance measures constructed
37. Observation instructional resources selected
38. Observation modules completed
39. Diagnosis skills specified
40. Diagnosis objectives stated
41. Diagnosis assessment criteria stated
42. Diagnosis performance measures constructed
43. Diagnosis instructional resources selected
44. Diagnosis modules completed
45. Intervention skills specified
46. Intervention objectives stated
47. Intervention assessment criteria stated
48. Intervention performance measures constructed
49. Intervention instructional resources selected
50. Intervention modules completed
51. CTT field settings selected
52. Instructional time scheduled
53. Training program implemented
54. Instructional logic conceptualized
55. Data management requirements specified
56. Data management system identified
57. Data management system adopted
58. Data management system modified
59. Design year activities reported
Aug., 1971
60. Design year completed



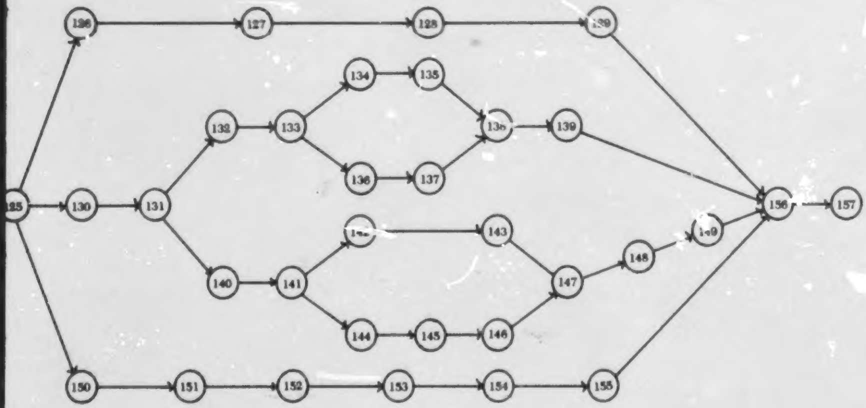
61. Target population further defined
62. Observation criteria specified
63. Normal pupil behaviors identified
64. Normal pupil behaviors sequenced
65. Exceptional children described in behavioral terms
66. Desired pupil behaviors specified
67. Evaluation criteria specified
68. Specification of CT intervention skills completed
69. Intervention objectives stated
70. Intervention assessment criteria stated
71. Intervention performance measures constructed
72. Intervention instructional resources selected
73. Intervention modules completed
74. Evaluation skills specified
75. Objectives for evaluation skills stated
76. Assessment criteria for evaluation skills stated
77. Performance measures for evaluation skills stated
78. Instructional resources for evaluation skills selected
79. Evaluation modules completed
80. Complementary skills specified
81. Objectives for complementary skills stated
82. Assessment criteria for complementary skills stated
83. Performance measures for complementary skills constructed
84. Instructional resources for complementary skills selected
85. Modules for complementary skills completed
86. Second year trainees recruited
87. CTT applications reviewed
88. Second year trainees selected
89. Objectives for CTM component reviewed
91. Performance measures for CTM component reviewed
92. CTM modules entered
93. Cognitive tasks completed
94. Contractual tasks completed
95. Performance data collected
96. Attitudinal data collected
97. CTM data analyzed
98. Trainee performance reported
99. Data requirements reviewed
100. Interim progress report prepared
101. Project renewal request prepared
102. University approval procured for renewal request

April, 1972

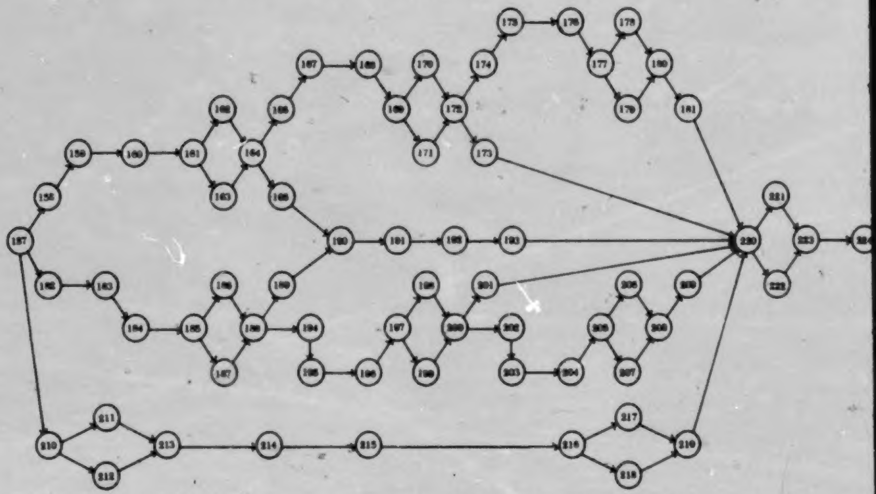
103. Renewal request submitted to BEH
104. Objectives for observation reviewed
105. Performance measures for observation component reviewed
106. Observation modules entered
107. Cognitive tasks completed
108. Contractual tasks completed
109. Performance data collected
110. Attitudinal data collected
111. Data for observation component analyzed
112. Trainee performance reported
113. Objectives for diagnosis component reviewed
114. Performance measures for diagnosis component reviewed
115. Diagnosis modules entered
116. Cognitive tasks completed
117. Contractual tasks completed
118. Performance data collected
119. Attitudinal data collected
120. Data for diagnosis component analyzed
121. Instructional effectiveness determined
122. Trainee performance reported
123. Academic year completed

June, 1972

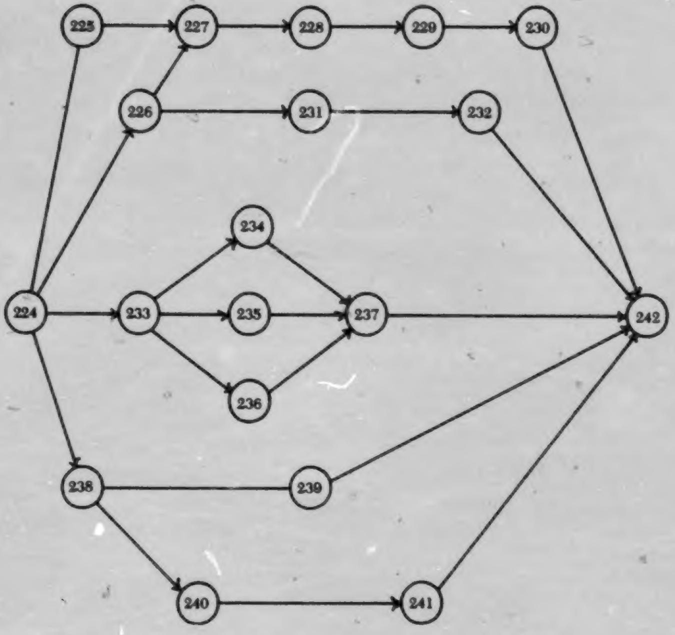
124. Report of first trial year activities prepared



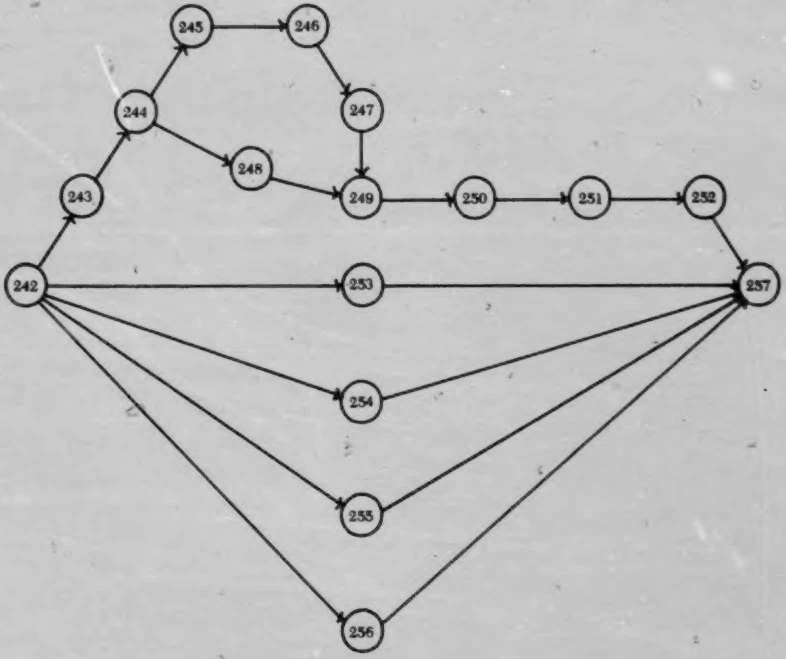
125. Project proposal renewed
126. Third year trainees recruited
127. CTT applications reviewed
128. Third year trainees selected
129. CTT orientation conducted
Summer, 1972
130. Revision of curriculum initiated
131. Intrinsic evaluation of objectives completed
132. Unnecessary modules deleted
133. Content of scheduled courses reviewed
134. Appropriateness of each course assessed
135. Courses incongruous with objectives deleted
136. Quality of each course determined
137. Ineffective courses deleted
138. Replacement modules developed where needed
139. Curriculum sequence revised
140. Necessary revisions in objectives completed
141. Behavior domain established
142. Performance measures evaluated
143. Performance measures revised
144. Instructional strategy determined
145. Content category determined
146. Appropriate media determined
147. Instructional weaknesses diagnosed
148. Revision recommendations prepared
149. Module revisions completed
150. Competencies required for internship specified
151. Internship objectives stated
152. Assessment criteria for internship stated
153. Performance measures for internship constructed
154. Instructional resources for internship selected
155. Internship modules completed
Aug., 1972
156. First year revision efforts concluded



Sept., 1972
157. Second trial year initiated
158. CTM component entered
159. CTM pretests administered
160. Cognitive tasks completed
161. Contractual tasks completed
162. Performance data collected
163. Attitudinal data collected
164. CTM data analyzed
165. Instructional effects determined
166. Observation component entered
167. Observation pretests administered
168. Cognitive tasks completed
169. Contractual tasks completed
170. Performance data collected
171. Attitudinal data collected
172. Data for observation component analyzed
173. Instructional effects determined
174. Diagnosis component entered
175. Diagnosis pretests administered
176. Cognitive tasks completed
177. Contractual tasks completed
178. Performance data collected
179. Attitudinal data collected
180. Data for diagnosis component analyzed
181. Instructional effects determined
182. Diagnosis component continued
183. Cognitive skills demonstrated
184. Pretest for diagnostic competencies administered
185. Trainees assigned to resource room
186. Diagnostic competencies demonstrated
187. Performance data collected
188. Diagnostic data analyzed
189. Instructional effects determined
Jan., 1973
190. Interim progress report prepared
191. Project renewal request prepared
192. University approval for renewal request procured
April, 1973
193. Renewal request submitted to BEH
194. Intervention component entered
195. Intervention pretests administered
196. Cognitive tasks completed
197. Contractual tasks completed
198. Performance data collected
199. Attitudinal data collected
200. Data for intervention component analyzed
201. Instructional effects determined
202. Evaluation component entered
203. Evaluation pretests administered
204. Cognitive tasks completed
205. Contractual tasks completed
206. Performance data collected
207. Attitudinal data collected
208. Data for evaluation component analyzed
209. Instructional effects determined
210. Student interns assigned
211. Pre-internship competencies demonstrated
212. Orientation of cooperating teachers completed
Sept., 1973
213. Internship entered
214. Clinical Teacher competencies demonstrated
215. Internship completed
216. M. S. degree requirements fulfilled
217. Initial Clinical Teachers graduated
218. Initial Clinical Teachers certified
219. First wave training program completed
220. Training program analyzed
221. Instructional weaknesses identified
222. Trainee competencies determined
223. Academic year completed



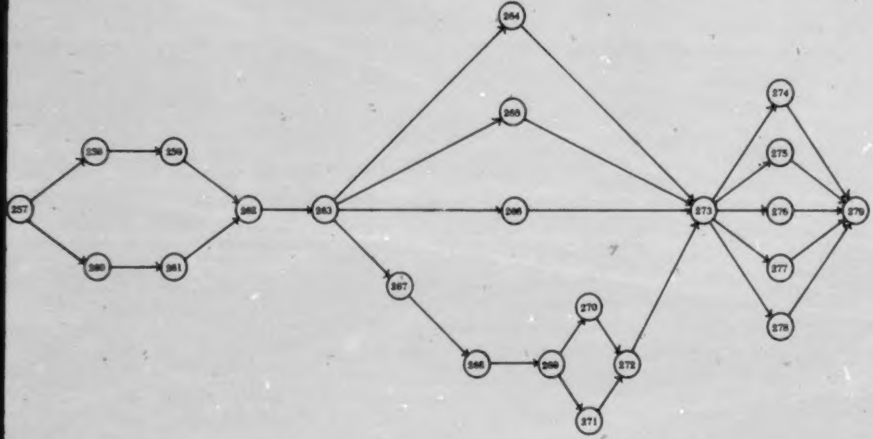
224. Program feasibility estimates prepared
225. Project proposal renewed
226. Decision concerning operationalizing the program reached
227. Fourth year trainees recruited
228. CTT applications reviewed
229. Fourth year trainees selected
230. CTT orientation conducted
231. Additional staff recruited
232. New staff members employed
233. Revision needs identified
234. Curriculum revisions completed
235. New resources identified and developed
236. Additional media options designed
237. Instructional modifications completed
238. Preparation for pilot installation initiated
239. Experimental design for testing CTM effectiveness completed
240. Appropriate installation sites located
241. CTM graduates employed



242. Preparation for fourth project year completed
243. Fourth academic year entered
244. Pilot field test initiated
245. Resource rooms prepared
246. Exceptional children referred
247. Clinical Teacher services performed
248. Sample from target population ensured
249. Achievement data collected
250. Achievement data analyzed
251. Pupil gains determined
252. Clinical Teacher effectiveness assessed
253. Project renewal procedures completed
254. Level I training activities implemented
255. Level II training activities implemented
256. Level III training activities implemented

June, 1974

257. Fourth academic year completed



258. CTM training program reviewed
259. Appropriate training program modifications implemented
260. Experimental design evaluated
261. Appropriate design modifications completed
262. Provisions for final field test completed

Sept., 1974

263. Fifth academic year entered
264. Level I training activities implemented
265. Level II training activities implemented
266. Level III training activities implemented
267. Project effectiveness experiment conducted
268. Pupil performance data collected
269. Performance data analyzed
270. Program effectiveness determined
271. Program efficiency determined
272. Appropriate program revisions identified
273. Final project report completed
274. Viable training program established
275. Program specifications disseminated
276. Final report to BEH submitted
277. Spin-off projects conceptualized
278. Project findings published

Aug., 1975

279. Project completed

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CHAPTER 2

REVIEW OF RELATED LITERATURE

Individualization of instruction has enjoyed a long and rich heritage, periodically attracting attention and dissension in the educational milieu. It is the purpose of this chapter to present a historical review of individualizing instruction in order to provide the reader with the philosophical, contextual, and procedural criteria upon which this model was based. W. T. Harris said (Search, 1901):

> "Nearly all present practices that have become established have a history of trial and experiments, and one who studies their growth in the past is taking the best way to discover what reforms should be taken up as the next best step in the present" (p. XVI).

The periodic recurrence of individualized instruction may well have been caused by the effects of new population groups entering schools and/or problems in public financing of education. The awareness that there are differences among learners and the ways in which they learn best, plus the American goal of educating each child to the extent of his potential, has perhaps contributed to the implementation of individually oriented instructional programming in the public schools. It is not within the scope of this review to analyze the historical and socio-economic mystique surrounding the periodic resurgence of individualizing instruction.

A comprehensive review of both the historical and current theoretical and research literature is confined to:

A. Individualizing instruction for children in the classroom.
B. The changing role of the teacher in individualizing instruction.
C. Teacher preparation programs for individualizing instruction.

Part A describes operationalized programs in the United States which have utilized one or more of the components defined as intrinsic to individualizing instruction as defined by this review; Part B delineates the changing teacher role as necessitated by these programs; Part C details the teacher preparation programs that attempted to train teachers to individualize instruction.

The reader should be cautioned that due to the abundance of applicable material, only carefully selected and representative information is presented.

INDIVIDUALIZING INSTRUCTION FOR CHILDREN IN THE CLASSROOM

In reviewing comprehensive educational structures related to individualizing instruction, the following frame of reference (Caldwell and Courtis, 1924) is pertinent:

> By individualization is meant the recognition of fundamental differences in the native capacities and tendencies of children and the adjustment of work in terms of these individual needs. (pp. 117-118)

The historical development of individualized instructional strategies emanated from the initial questioning of Harris in 1868 (Washburne, et al, 1926) who "vigerously [sic] challenged the validity of requiring all pupils to do the same amount of work and to advance at the same time" (p. 3). This provided impetus to the ensuing examples of individualized instruction.

EARLY EUROPEAN INFLUENCES

According to Saettler (1968), "Before 1800, instruction at both the elementary and secondary levels was predominantly individual" (p.

26) in the typical English one-room school house where the teacher heard individual recitations of pre-assigned work. Following an influx of students into the English schools during the early 1800's, Lancastrian Monitoral Instruction dominated education in England. This was a form of highly organized large group instruction providing for low-cost mass education where "... under an efficient scheme of classroom management ... one teacher was able to take charge of five hundred or more students at one time" (p. 28). Monitors supervised the drill and practice routines and the "... pupils were grouped according to ability" (pp. 28-29) in each subject area. Landon (1884) stated that in France individualized instruction was the original, traditional scheme of school organization and that "In 1843 there were still 5,844 primary schools in France conducted in this way" (p. 119). He added that "France seems to have clung much longer to the plan than some of her neighbors, though a few schools organized on the individual plan lingered late, even in the heart of Prussia" (pp. 118-119). Throughout Europe, varied large group instructional programs emerged. To mention a few, the Bell Method utilized students as tutors, while the Glasgow or Stowe System organized systematic instructional outcomes and served as a precursor to graded schools (Landon, 1884).

A BEGINNING IN THE UNITED STATES

According to Caldwell and Courtis (1924):

> By far, the most remarkable gain in the seventy-five years that have passed since 1845 is the growing tendency toward individualization of mass instruction. Through the years there has been a slow but steady reduction in the size of classes, yet whether a class numbers twenty-five or forty-five, the methods of teaching have been those of "broadside" treatment. Educational psychology and educational measurement, however, have produced a mass of data, all showing that the most constant trait about human nature is its variability. As a result, teachers are at last beginning to act on the belief that children differ, and to invent methods of classroom teaching which would enable a teacher to deal with a large group of children and yet allow a child to grow at his own rate and to study in his own way. (p. 124)

The object-teaching method, an outgrowth of Pestalozian-Froebelian followers of the practicality of education, revised many of the previous practices, and "... the learning-by-doing movement ... reached its height in the 1880's" (Saettler, 1968, p. 38). The Massachusetts Board of Education, in evaluating education in the city of Quincy (Bagley, 1907), described the wider range of materials "... changing their schools into 'national history museums' and 'mud-pie factories,'" while reporting that testing showed "Quincy children ... superior to those educated by traditional methods" (p. 37).

Organized efforts to institutionalize individualized instruction in the United States first appeared in the early 1890's. Reviews of these efforts follow.

Pueblo Public Schools, Colorado: One of the earliest reports of a concerted effort to individualize instruction for children on a system-wide basis (Search, 1894) was a "detailed description of the principles, methods and results of the work in the Pueblo industrial public schools of Pueblo, Colorado" (p. 154). The guiding principles were described as follows:

> The fundamental characteristic of the plan on which the schools are organized is its conservation of the individual. The pupil is placed purely with reference to where he can get the most good for himself. He works as an individual, progresses as an individual, and is graduated as an individual. The ordinary nomenclature of schools is continued for convenience; but the whole system is one of flexibility, permitting pupils to pass from working section to working section as may be expedient. The perplexities relative to class intervals have disappeared, because there is no mechanical classification ... In brief, the school is both graded and ungraded: graded in so far as applies to its plan of work, but ungraded in its accommodation of the individual.
>
> The health of the individual child was of prime consideration, resulting in a condensation of work periods, no homework, and a total economy of time and effort geared toward mastery of a specific skill area.
>
> Pure love for the work itself, and the opportunity for continuous promotion ... were the only motivation; artificial reward systems were eliminated.
>
> Each child's progress was accounted for, and accredited; and ... there must be a place for every pupil, be his advancement or progress what it may. Hence, the desirability of an educational system that adapts itself to the circumstances and environment of individual life. (pp. 154-160)

Methodologically, the school was described as follows: "As a rule, the entire work is by and for the individual" (p. 161). Descriptions of "work sections" in the subject areas of Latin and Greek, modern languages, mathematics, science, history, biography, literature, commercial studies, technical grammar, geography, physical culture, manual training and drawing, vocal music, and reading were presented in detail; each had as its particular basis the fact that: "Each child is carefully examined and appropriate exercises are prescribed . . . and in no case is the individual lost sight of" (p. 163). Although the methodological descriptions encompassed the entire range of the school curriculum, ". . . indeed it may be added the entire plan of the school finds its keynote in the application of the principles of the kindergarten to every department of school work" (p. 157).

In terms of results, the Pueblo experiment (Search, 1894) concluded that:

> It has often been said that in view of the general demands of mass education, provision cannot be made for the individual. If the Pueblo experiment and this article stand for any one thing, it is simply this: provision for the individual can be made, for it has been done. (p. 1)

Specific mention was made of the following positive results:

1. Better health
2. The trained, independent, self-reliant worker
3. There is more work accomplished, and the work is more thoroughly done
4. There is more enthusiasm in work
5. There is less discouragement
6. There is more opportunity for additional and outside work. (pp. 165-169)

In conclusion, the Pueblo Plan as delineated in *An ideal school* (Search, 1901) ascertained that:

> Unquestionably the school of individual differentiation will be more complex and more difficult to conduct than one of Procrustean method. It is infinitely harder to adapt one school to the needs of a thousand pupils than to adapt one thousand pupils to a single plan. (pp. 11-12)

Therefore:

> We need, then, a radical departure from the uniformization practised [sic] so much in schools. We need an education that will develop differences and conserve individuality. This will not render school work easy; it makes it hard and difficult, but it will certainly be more scientific. (p. 7)

Batavia Public Schools, New York: While the early emphasis on individualization of instruction may have been historically related to the westward pioneer efforts, the age of the "Rugged Individual," Teddy Roosevelt, etc., evidence of this innovation in education was not limited to the "wilds of the West" and/or rural habitats. In 1897 Batavia, New York, population 10,000, was the setting for the beginning of the so-called "Batavian System of Individual Instruction." First reported as a review of a three-year study (Kennedy, 1901), this plan of individualizing instruction was devised ". . . not as a substitute for class recitation, but as a supplement to it" (p. 295). Due to the managerial problem of not being able to subdivide an overcrowded classroom

> We were compelled to handle all those children in that one room (78) . . . to find the weak spots in the room and make them strong spots, and to do this in such a way as not to disturb the established work of the room . . . to use two teachers in one room. (p. 296)

In this accidental occurrence of individualized instruction, the motivating principles were those of (1) expediency, (2) efficiency, and (3) space utilization. Out of this, the pragmatic determination of individualizing instruction through the dual methodologies of self-instruction plus group orientation was born. It was described as ". . . not only a revelation, but a revolution" (p. 297). In ringing superlatives and metaphors of the era, methods were described which abounded with positive reinforcements and appeared to be guided by the tenet: "Just warm up the slow ones, and they will put the quick ones onto the 'double quick' " (p. 298). Results were measured by success in attaining high school entry:

> Our high school has increased 30 percent in the past year, but even more noticeable than the increase in numbers is the improvement in the work of the students and in the general *esprit de corps* . . . and every test shows the advancing standard of scholarship. (p. 300)

Kennedy concluded:

> From an experience of three years with individual instruction as the supplement and corrective of class-teaching, I am compelled to look upon it not only as a great educational departure, but as an imperative humanitarian reform. (p. 300)

Bagley, in 1907, summarized ten years of the Batavian plan as follows:

> The "backward pupil" is eliminated . . . some good results may be found in almost every school, but in the Batavian schools the results are *uniformly* good with *all pupils* [italics mine] . . . no one is allowed to fall behind. (p. 218)

CONTINUING EFFORTS AND EXPANDED DIALOGUES

The literature in the following years featured the debates between the proponents and the protagonists of individualized instruction versus group instruction across the country. The salient characteristics inherent in the support of individualizing instruction are the very components proposed by Cronbach (1967); Edling (1971); Schwartz (1967); and others today: those of diagnosis, intervention, and evaluation.

Andrew (1905) in an attempt to implement individual instruction in Cincinnati, Ohio, proposed that teachers study each child in order to "learn the peculiarities and characteristics of the child" in order to ". . . give each individual the instruction needed" (p. 136). He continued:

> The product of such work will be of such a denomination as will come from multiplying the possibilities of the child by the number of horse-sense units the teacher really possesses. (p. 136)

Erskine (1906) in describing St. Louis, Missouri's implementation of individualized instruction, emphasized the economy of effort and funds, and the independence of the learner in attaining his particular educational objectives.

> The recognition of the pupil's individuality as a factor in his own advancement is of inestimable value to him; it arouses his enthusiasm, awakens belief in his own ability, and develops that power of initiative so vital to success . . . (p. 640)

In terms of diagnosing individual learning patterns, Young (1907) first raised the basis for current-day interest in Aptitude-Treatment-Interactions which are congruent with the individualized instructional system depicted in the Clinical Teacher conceptual model. He discerned the differentiation between content methods of teaching and modes of learning as potential instructional delivery systems and their interdependency upon each other.

> The nature of the topic discussed, the character of the class, the needs of the individuals, the material surroundings and classroom equipment, all exercise influence on the determination of the best mode. (p. 67)

By analyzing each of the above components (task analysis procedures) the emergent mode became the predictor of success to be modified as the components and the pupil varied ". . . in what is really the most successful mode for him today" (p. 67).

Parkinson (1908 Part I) defined individuality as "the integrity of the individual . . . interests, aptitudes, the powers, the limitations, the resources acquired, the native endowments . . ." (p. 17) all prerequisite to determining a course of study. Compromise and conservation in maintaining a balance between the individual and his social adjustment was considered primary in ascertaining the course of study; multiple presentations of subject matter, and wide choice deliberations within constraints were necessary in prescribing instructional interventions to afford success in both realms of endeavor.

Apparently, concurrent models of individualizing instruction patterned after the aforementioned programs spread across the United States. Of specific local interest to the authors are the records of the Leon County Board of Public Instruction, Tallahassee, Florida (1910), which stipulated that "These Trustees also recommended that a 'Batavian Teacher' be employed for Leon Graded High School" (p. 172).

Kennedy (1912) in reviewing the Batavian plan after fourteen years of operation, summarized the results in terms of teacher effectiveness, school sanitation, and preoccupation: "Our children all move forward and arrive on time . . . there is no longer any retardation" (p. 451). The increase in enrollment in the high school was viewed as a positive outcome of the individual instructional program in the elementary school — "Also our students are going to college in larger numbers and seeking the benefits of higher education" (p. 454). From a cost effectiveness point of view, Kennedy ascertained a ". . . maximum of registration and a maximum of average daily attendance" resulting in "reducing the per capita cost since the introduction of the Batavia plan" (p. 455).

Philosophical debates in the literature continued with emphasis focusing on individual differences, how to study and detect them, and then what to do about them. McManus (1916) maintained that the recognition of individual differences, of necessity, must be delineated and proper educational guidelines provided as soon as the child enters school to prevent early school failure:

> They have not yet reached a stage where they can adjust their differences to the needs of the group to which they belong . . . he must act in his own way when he wants to act, or he is left helplessly following the accident of circumstances. (p. 290)

Consequently, "No two can be treated alike until they have been carefully studied and understood" (p. 291), and a flexible course of study was recommended for first graders, utilizing kindergarten adaptations. In harsher language, Perkins (1916) stated, "A kind of management that will rule one child will ruin another . . ." (p. 235).

Burk (1918) president of San Francisco State Normal School, entered the debate of "Individualized Instruction vs. The Lockstep System." Besides translating the philosophical arguments into an operational teacher education program in 1913, Burk presented a cost analysis procedure designed to reduce educational procedures by half:

> We could double the number of teachers in a school *with no addition to the cost of schooling* provided that by so doing we cut the time of schooling one-half. (p. 330)

Burk's data, inclusive of the eight grades of elementary school ". . . indicate that the variation for completing these eight elementary grades will lie between five and seven years" (p. 328).

> Under an individual system, pupils vary *in the time* required to complete a unit of work, but they are practically identical in thoroness [sic] in results; under the class system the time is uniform, but they vary *in thoroness.* (p. 328)

In terms of reading, Sutherland (1922) questioned the ability of a teacher to ". . . reasonably be held accountable for adapting work in reading to the needs of the individual pupils . . ." (p. 37) since after eliminating the grossly different children "a careful study of the remaining pupils of a grade will show that 30 to 35 percent of the pupils are retarded in their development because of failure to 'use their minds in reading' " (p. 37).

In 1918 procedures and techniques in the form of performance objectives with criteria were developed and implemented for "backward and misfit children in the Los Angeles schools," (p. 39), in so-called "adjustment rooms" utilizing reading continuums, self-scored exercises, and achievement records that the child himself kept. Sutherland concluded that:

> Self-directed practice in developing reading skills toward a known and fully-comprehended objective develops these skills more than four times as rapidly as they develop under the hit-or-miss methods of many classrooms. (p. 42)

Perhaps the past eighty years of review of individualizing instruction suggests a philosophy that encompasses pragmatic evidence of attempts to operationalize some of the components contained in the Clinical Teacher Model. The essential characteristics are:

1. Formal and informal diagnosis of individual learners
2. Task analysis and sequencing of instruction
3. Designation of varied learning methods, strategies and techniques

4. Prescription of learning formats utilizing above components
5. Appropriate criteria designation
6. Evaluation mechanism
7. Feedback necessitated for instructional revision purposes
8. Accountability of the system of instruction for learning gains of student.

POPULARIZED PLANS

Subsequently, the debate within the educational forum changed from "lockstepping versus individualizing" to "ability grouping versus individualizing." Together with the emergence of new forms of research procedures and refined statistical analyses, large systematic operationalizations of individualized instruction became evident throughout the country. According to Saettler (1968):

> Burk developed one of the first systems of individualized instruction at the San Francisco State Normal School, in 1912. . . . He and his faculty rewrote courses of study to permit learners to advance at their own rate of progress with a minimum of teacher direction. Self-instruction bulletins in arithmetic, geography, grammar, history, language, and phonics were written, published, and distributed throughout the United States and in foreign countries. Over one hundred thousand bulletins were sold without any advertising — or profit to authors. However, a 1917 ruling of the California attorney general abruptly stopped their publication, as the power to publish textbooks or printed instructional materials was judged to rest entirely with the State Board of Education. As a result of the California ruling, the fruitful work begun by Burk was curtailed. It remained for two of his associates, Carleton W. Washburne and Helen Parkhurst, to develop two of the most outstanding and distinct plans of individualized instruction. (p. 63)

Burk (1924) contended that:

> The class lockstep by which pupils are expected to march through school grades in the even step of a platoon front without personal deviation should be replaced by the introduction of individual instruction by which pupils may develop native endowments of acquired tendencies, each according to his measure. The course of study should no longer fixedly determine in advance what and how all pupils shall uniformly study. Beyond the tool subjects and the powers that all people use in common, the course of study should be determined by the "desires to know" of different pupils. A new pedagogy will concern itself, not so much with *what* pupils shall learn and *how* they shall learn, but with shaping

> school conditions to give that freedom of mind and action by which pupils may leap to their destinies, not follow unwillingly duties arbitrarily dictated to them. (p. 30)

The Winnetka Plan and the Dalton Plan were two of the most outstanding results of this movement toward individualizing instruction.

Winnetka: Saettler (1968) most adequately summarized Washburne's efforts in Winnetka, Illinois, in 1919, as follows:

> The plan provided for self-instructional and self-corrective practice materials (workbooks), a simple record system on which each pupil's progress was noted, and prepared materials appropriate to each pupil's particular project assignment. Thus, the twofold problem of the faculty was to analyze course content into specific objectives and to develop a plan of instruction that would enable the learner to master each of the objectives at his own rate.
>
> The Winnetka Plan not only provided for learners to proceed at different rates, but also recognized that the learners proceeded at different rates in different subjects. As a result, diagnostic tests were given each learner to determine what goals and tasks he should undertake. When the learner thought he had accomplished his goals, he took a self-administered test to see whether he was ready for testing by the teacher and whether he was prepared to undertake new goals and tasks. (pp. 63-64)

Simultaneously with the operationalization of Burk's initial endeavors, Washburne and Vogel (1926) developed and validated an array of reading materials based upon:

1. Graded competencies
2. Age interest level indices
3. Sex differences
4. Children's enjoyment of specified books.

According to Voegelein (1929), these books were recommended for usage following a pre-instructional evaluation of each child to ascertain his skills in reading, interest level, and rate of learning; then the selection of the matched reading material was determined.

In each academic area objectives were developed, sequenced according to difficulty, mastery levels pre-determined, alternative instructional procedures described, and evaluation mechanisms presented (Washburne, 1929). Positive results in terms of children's attainment of mastery level in this individualized instructional system were summarized by the statistical results of research studies conducted mainly in Detroit and Winnetka, to answer the following nine questions:

> 1. Do pupils fall into natural ability-groups? No . . .
> 2. Does individual work save time? For at least 50 percent of children it does save time.
> 3. Does it provide more time for social and self expressive activities? Yes.
> 4. Does it put children through school too fast? No. The median age of eighth-grade graduates in June, 1924, was 13 years, 11 months.
> 5. Does it decrease retardation? All studies indicate that it probably does. 14.4 percent of children over-age, as compared with 22.2 percent in schools . . . using class methods.
> 6. Does it increase efficiency in tool subjects? . . . definitely increased by individual instruction.
> 7. Does it cost more? . . . it does not.
> 8. Does it place a heavier load on the teacher? Data are inadequate.
> 9. Does individual work in elementary schools increase or decrease efficiency in high school? Data are inadequate. (pp. 214-215)

In conclusion,

> Ability-grouping (as opposed to individual instruction) does not adequately provide for individual differences; individual instruction saves the time of many children; it tends to raise the level of efficiency in the tool subjects. (p. 214)

Pursuant to a comprehensive "on site" analysis of various forms of individualized instructional formats in Europe, Washburne and Stearns (1926) contended that there was, indeed, a trend in that direction both there and in America. They summarized as follows:

> . . . our school organization [must] be less rigid — more flexible and more easily modified from day to day and hour to hour, so that it may mold itself to the needs and interests of the children . . . Let the children be recognized as individuals, allowed to progress and develop at their own rates, each one's special needs or abilities being made a basis for his fullest possible development. (p. 173)

Dalton: Saettler (1968) summarized Parkhurst's Dalton Plan, initiated and adopted by the high schools of Dalton, Massachusetts, in 1919, as follows:

> Its principal features were: differentiation of assignments for different ability levels, self-instructional practice materials, and assistance with individual study difficulties. Under this plan, the teacher made a contract with the student concerning his assignments. Having undertaken it, the student was free to budget his

> time in completing the contract. His only limitation was that he could not receive another contract until he had completed every phase of the one he had in progress. (p.64)

Contrary to Washburne's emphasis on programmatic and curriculum revisions in order to provide for the individual learning needs of children, Parkhurst's plan provided a management plan for individualizing instruction with no directions for changing the curriculum content. Parkhurst (1929) ". . . considered [the plan] a vehicle for the curriculum (p. 84)," a reorganization of the school time and school facilities into so-called "laboratories" to provide for the efficient operation of the curriculum.

Underlying principles for the implementation of these managerial strategies for use with older elementary and high school-aged students were:

> 1. Freedom . . . to work without interruptions . . . which . . . impede his complete development
> 2. Interaction of group life or community living . . . through . . . subject laboratories and specialists
> 3. Budgeting time . . . according to the demands of their individual needs and difficulties. (pp. 84-85)

Thus, the day was divided into units and the student contracted with the teacher as to the specific laboratory to be used and the time allotment for the mastery of any one subject area.

Dewey (1922) stated that the plan was a simple and economical reorganization of school machinery, preserving the grade structure while permitting individual growth, and insistent upon group interactions to be used with children from fourth grade through high school.

Many adaptations of the Dalton Plan were reported. Interest in the United States followed initial enthusiasm and popularity in England and throughout Europe. Notwithstanding the numerous descriptive "experiments" ascribed to the Dalton plan (Voegelein, 1929), indications of research endeavors with any data cannot be found in the literature.

Morrison: Consistent with the growth and development of organized programs in the early and late 1920's to facilitate and promote individualization of instruction, the Morrison plan emerged (Saettler, 1968). This system, designed for secondary schools:

> . . . provided for units in sequence, and guide sheets for lesson assignments. . . . The classroom was viewed as a laboratory where units and assignments were differentiated for learners of varying ability. Morrison's formula for mastery was: "pretest, teach, test the result, adapt procedure, teach and test again to the point of actual learning." (pp. 64-65)

According to Morrison (1931):

> The essential characteristic to be developed in each learner is that of sustained application . . . In a sense, the fundamental problem of teaching is so to train the pupil, so arrange his studies and so apply an effective operative technique that he will eventually be able to become absorbed in any study . . . (p. 141)

Today's principles of contingency management were well integrated into this system as were time-sampling reports of off/on behavior, inherent in today's behavior modification programs. Statistical indices for training these practices in all children were indicated, plus a multitude of observational systems and methods of analysis. These activities are not referenced in present-day "new" methods for changing behavior in children.

Although predictions of the overwhelming "take-over" of individualized instructional systems were indicated throughout the literature of the 1920's, it never occurred. Indeed, there appeared to be a dearth of inquiries and/or reports between 1930 and 1960. Perhaps the renewed attention on achieving excellence, due to the advent of Sputnik, caused the reassessment of the practice of group education. In any event, in the early 1960's, The National Society for the Study of Education published their second yearbook regarding individualized instruction. It is interesting to note that thirty-five years following the initial reporting of specified successful program structures in terms of urging public adaptations of said models, this newer version (Tyler, 1962) dealt with ". . . broad issues and general principles rather than with specific proposals" (p. 5). Discussions and studies were reported that appeared to attempt to prove one statistical method more effective than another in determining the "better" method of teaching individuals. Variability of the learner and the "heterogeneity of the homogeneous" group were discussed throughout from either theoretical references or normative reference data, thus providing no so-called "recipes" for implementation of individualizing instruction.

CONTEMPORARY VARIATIONS AND RESEARCH ISSUES

Current practices, procedures, and theoretical justifications for individually-oriented curricula for improving learning have been manifest throughout the country, both in general and in specific operationalizations of program formats.

Variations: "Diagnostic," "prescriptive," "personalized," "independent," and other terms are currently used to convey the revitalized efforts in individualizing instruction. A systematic taxonomy was initially developed by Cronbach (1967) and later operationalized by Edling (1971) in a review of forty-six designated individualized instructional programs throughout the country. Edling concluded that there was no ". . . one way to individualize instruction. . . ." and further stated that:

> There are no reports of individualizing instructional programs resulting in less achievement; . . . individualized instruction may not help — but it won't hurt either. (pp. 6-7)

Singular reports of success in individualizing instruction did appear in the literature regarding changes in attitude and interest in learning. Replications of achievement research were non-existent and research findings, themselves, were rare. Indications of statistical implications of methodology appeared, and evidence of usage of educational technology as a given method of individualizing instruction was found.

This paucity of research in individualized instruction may well be a reflection of the general limitation of research in schools. Edling (1971) studied 46 individualized instructional programs in 24 states. In urban Los Angeles, Project PLAN determined that achievement scores on standardized tests increased due to grouping learning activities in modules containing objectives and alternative routes of instructional strategies. Individually Prescribed Instruction designated prescribed sequences, specified objectives, and clearly spelled-out systems of instruction with methods and materials. An increase in the achievement of reading and arithmetic skills in low socio-economic schools in the Pittsburgh, Pennsylvania area was documented. Riedesel and Burns (1973), however, in reviewing specified current research in individualized mathematics instruction, found no significant results as measured by standardized achievement tests.

Current reporting may also be a limiting factor in the dissemination of new means of instructional delivery systems. The authors of the most recent reviews of educational research, as selected by Travers, (1973) clearly state their geographic biases in limiting their discussions of individualized instructional formats to IPI (Pittsburgh, Pennsylvania) and PLAN (Los Angeles, California). This may have limited further inquiries into other formats, and thus continued the prevalence of comparing one method of instruction against another. This ignores the heterogeneity of the learner who may benefit from selective parts of both.

Positive findings were further limited by research efforts focusing on proving that one particular brand of individualized instruction was better than the more traditional model.

Research Issues: Research strategies in Aptitude-Treatment-Interaction (ATI) were designed to determine which variables would predict success in specified instructional formats. ATI is a research method for assessing the value of alternative individual strategies matched with an individual's varied learning aptitudes. Bracht (1970) in synthesizing the research on ATI reiterated that there was ". . . no single instructional method more effective than another" (p. 627). On the contrary,

> The goal of research on ATI is to . . . develop alternative programs so that optimal educational payoff is obtained when students are assigned differently to the alternative programs. (p. 627)

Roberts (1968-69) in support of the hypothesis of interactions between learning tasks and human abilities, recommended that "Many more investigations using more relevant learning materials . . . [be] conducted showing systematic relationships" (p. 8). Ripple, Mellman, and Glock, (1969) in an analysis of learner types and structures of materials, concluded that:

> It may be that the interrelationships between characteristics and modes of instruction employed are far less simple and more specific than at first thought. (pp. 119-120)

Snow (1970) reiterated that in the use of varied media with varying types of learners, there was "... no one best method for everyone" (p. 65). In his preferential model he attempted to show that treatments are designed to capitalize on the apparent strengths and preferences of each kind of learner.

Britt (1971) developed a management system utilizing the construct of learner types which he translated for input and output schedules via computer-managed systems with the purpose of classifying learning types so that one could expect "substantial improvement by allowing the curricula to be precisely created and integrated for the separate, predetermined, specific needs of each individual's type" (p. 14). Tobias (1970) extended the theoretical basis for ATI into a triple interrelationship of Aptitude-Task-Treatment-Interactions. This closely paralleled the Clinical Teacher Model (Schwartz, 1971b) which operationalized the intimate, inextricable interrelationship between learner, task, and instructional variations in defining his instructional logic. Austin and Leonard (1973) synthesized the accommodation of varying learning characteristics and matching models of individualized instruction in a most recent taxonomic approach:

1. Single characteristics accommodated with a single set of learning materials and activities (i.e., learning rate)
2. Multiple characteristics accommodated with instructor-based selection among alternative materials and activities
3. Multiple characteristics accommodated with student-based selection among alternative materials and activities. (p. 59)

CHANGING ROLE OF THE TEACHER IN INDIVIDUALIZING INSTRUCTION

Concern has been shown historically in terms of redefining the role of the teacher in the implementation of individualized instruction. Search (1901) posed the question:

> Who made the schoolman so omniscient and omnipotent that he can justly take into consideration all these conditioning elements of heredity and environment when he sits down to measure mind by a scale of percents or other mechanical nomenclature, which too often measures himself and not the pupil whose infinitude he has failed to comprehend? (pp. 6-7)

The recognition of the changing role and function of the teacher in individualizing instruction was expressed universally by the early proponents and appeared congruent with their particular programmatic format.

VARYING ROLES IN VARIED ADMINISTRATIVE PROVISIONS

Search (1894) used the term "artist teacher" to describe the bulwark of the Pueblo plan of individualization:

> This teacher does not "spend the night in perusing and marking their written manuscript." All work of this kind is done at the time of the pupils qualification, excepting in special cases. The spirit of the school is to discourage all post-mortem work of the character mentioned. The teacher's energy is required in general advance preparation, and specifically at the time of the pupil's need. (p. 85)

This was in contrast to the description by McMurray (1895) of the class-oriented teacher of that day: "Teachers are much more likely to think of simply a group of twenty or one twenty, then twenty ones" (p. 245). Therefore, it followed that if, indeed, one was to individualize each child's instruction, ". . . then the first duty for the educator is to attempt to furnish that education" (Search, 1901, p. 74). Concomitantly, if there was to be a systematic instructional program to meet the uniqueness of each learner ". . . the recognition of the variations of these individual differences must be fundamental in scientific education" (p. 166).

Kennedy (1912) represented the Batavian teacher as having almost omnipotent competencies, but in need of an equally strong structure to support the implementation of these skills:

> It will be maintained, no doubt, that the power is in the teacher rather than in the method. And, in a measure, this is true. It was David who struck down Goliath, and not the sling. It was the Theban formation, however, that struck down the hegemony of Sparta. Epaninondas won by creating and perfecting his instrument. It was the Macedonian development of the Theban phalanx that changed the history of the world.
>
> The work of the needle-gun and the ironclad battleship is fresh in our mind. The whole military world is watching with feverish interest for the appearance of the next empire-maker. (p. 299)

And the total success of Batavia again was described as "not only a revelation but a revolution" (p. 297).

Andrew (1905) proposed smaller classes to fulfill the new role of the teacher as an individualizer of instruction, stating, "In large classes there is no opportunity for knowing students and much of the teaching is 'wasted sweetness on the desert air' " (p. 134). What was proposed was "the strong, personal interest and individual touch of a man or woman!" (p. 134) Furthermore:

> This grouping of children brings the teacher into closer touch with each child, and she is thus enabled to learn the peculiarities and characteristics of the child. By so studying the child she is better enabled to give to each individual the instruction needed.
>
> The great fault with most teachers is that they talk all the time and to little purpose. Talking much less, but directing a great deal more, will bring about a needed change in our work. The time will come in our lives, no doubt, when a schoolroom will not be a prison, or a place where children will dread to be sent. (p. 136)

The expected result of the proposed reorganization of the schools in order to permit the teacher to function in individualizing each student's education was that:

> The genuine teacher will work with but one, yet they are all with her. The product of such work will be of such a denomination as will come from multiplying the possibilities of the child by the number of horse-sense units the teacher really possesses. (p. 136)

Erskine (1906) stressed the economy of effort and the resultant economic-educational gains in individualizing instruction.

> We have shown, we believe conclusively, that the scope of individual instruction is much broader than that of class teaching. Its *chief strength, however, is in another quality*—and that economy. For, is there anyone who, surveying his own educational career in retrospect, does not deplore much of its futility? Could we have been but our own teachers! Or could they who taught us have noted more closely our own peculiar type of mind, what untold benefit might have accrued to both. Progressive education is simply the effort to lessen for each succeeding generation the area of the waste places in the educational field. (p. 639)

In the determination of the appropriate method and mode to effect mathematical gains in the individual learner, Young (1907) stressed the needed flexibility and constant awareness of the teacher of the differences in the proposed task objectives and the resultant strategies.

> The good teacher will not confinehimself to any one mode. Different modes will be employed at different times, often even in the same class exercise, and procedures will be used which so combine features of various ones of the modes named that they can be classified under none of them. The nature of the topic discussed, the character of the class, the needs of the individuals, the material surroundings and classroom equipment, all exercise influence on the determination of the best mode. . . . No teacher can select even for himself a permanent mode of handling any subject or topic. The teacher must grow, and next year's viewpoint may require modification in what is really the most successful mode for him today. (pp. 66-67)

Bagley (1907), evaluating ten years of the Batavian schools, defined the teacher's role as an effector of balance between "class — individual" instruction:

> . . . to preserve the stimulus which comes from group-instruction, and, at the same time, to provide explicitly and systematically for whatever extra instruction . . .
>
> The initiative in individual instruction must always be taken by the teacher [who] must discover his weakness and proffer aid. All individual instruction must be given by the developmental method . . . by helping him to help himself . . . (pp. 215-216)

Parkinson (1908) reiterated this position:

> The teacher who is absorbed wholly in class exercises cannot safely prescribe for the individual, and the teacher who relies wholly upon tutoring each individual will narrow the pupil and make him a passenger, rather than a traveler. (p. 24)

Therefore, Parkinson continued, the teacher must:

> . . . have the opportunity to observe the pupil's habits of mind and his peculiar difficulties, and to discover wherein the class instruction has failed to meet his needs. (p. 24)

Parkinson appeared to stress initial selection of the teacher as an all-important prerequisite for the attainment of individualization of instruction for the resultant pupil gains.

> The one real agency for forwarding of both education ends is the teacher, who influences the processes of interpretation by which the student translates outward occurrence into personal experience. Organization has little effect except insofar as it adjusts the teacher's contact with pupils, and that organization is best which under the particular conditions gives greatest scope to the exercise of the teacher's personal influence, and favors his broader acquaintance with the pupil's personal point of view.
>
> The two improvements in administration which will avail most, both for the higher development of individual power and for the more effective adjustment of the individual to society, are the reduction of the quota of pupils to a teacher, and the securing of teachers of higher power, able out of a depth of experience to point the pupil to the real significance of the panorama which unfolds before him. (p. 109)

On the one hand, the literature revealed the omnipotence of the teacher best summarized by Kennedy (1912):

> Children have many debtors because they have many needs; but there are few on whom they have as great and as sacred claims as on their teacher. (p. 459)

McManus (1916) described another role for the teacher as an individualizer of instruction which closely resembled that of the team-teacher of today:

> Teachers might just as well be assigned to teach groups of interests as groups of children. They could be assigned to teach children needing special care along some of the lines already pointed out. One could teach construction work, another the art and music, another the play and games, and still another, the reading and spelling. (pp. 294-295)

It followed that administrative provisions must be adequate for the emergence of this role:

> We dare not merely lump our class into one whole, seated in regular order. Flexibility of work means facilities for work of different kinds. There must be a place for each child after we have found out what his capacity and his limitations are. Simply to know that a child has such and such peculiarities will be of little value unless provision is made for the utilization of the peculiarity. (p. 294)

Perkins (1916) defined the new role of the teacher as all-important, and warned against the adherence to any one administrative provision and/or management strategy.

> To the child's teacher the school is nothing in itself; it is simply an instrument, made necessary by circumstance for the education of the boy and girl. (p. 234)

Perkins concluded that, "A kind of management that will rule one child will ruin another . . ." (p. 235).

Burk (1918) argued for structural innovations and justified these in terms of time analyses to permit the teacher to function as an individualizer of instruction:

> This new relationship between pupil and teacher is the mother of an education which has a far horizon. It means an open door to ambition, motives and all conditions favorable to education. It means freedom to the latent birthrights for each different personality. The pupil can think in his own way and at his own rate. His teacher is not his taskmaster, but his friendly helper. School is not a treadmill but an exercise-ground for his ambition, his desires and his personal ingenuity. (p. 229)

In order to implement a program of individualized instruction, Washburne (1932) defined the teacher's role in a manner parallel to that of the model presented for the purposes of this project (see p. 82)

Clinical Teacher Model of Teacher Role:	*Washburne's Definition of Teacher Role:*
1. Objective Determinator:	. . . must determine specifically what it is he expects the children to master. To set down in black and white exactly what it is that they expect every child to master. (p. 2)
2. Criterion Setter:	. . . must be clear . . . in the form of specific statements as to exactly what things the child must master and how he must master them. (p. 2)

3. Diagnostician:	There must be complete, diagnostic tests to cover the objectives the teacher has specified . . . (p. 4)
4. Intervener:	. . . making of materials which are self-instructive and self-corrective. (p. 5)
5. Evaluator:	Determining mastery of the unit. (pp. 7-8)
6. Reporter:	Through self-correction, the child was immediately aware of level of mastery and advancement or remediation indicated and pursued. (pp. 7-8) "Goal cards" with dated indices of 100% mastery together with narrative explanations were sent to parents. (pp. 166-167)

Dewey (1922) defined the Dalton teacher as an observer of behavior and a specialist in managing the necessary instruction. "The children are the experimenters. The instructors are observers, who stand ready to serve the community (school) as their special talents are needed" (pp. 1-2).

> As observers, they study the children to find out what environment will best meet the immediate educational needs. As specialists, their function is to give technique, to point the way to the acquisition of information, and to maintain intellectual and technical standards. (pp. 1-2)

Courtis (1929) maintained that the new role-designate for the teacher as an individualizer of instruction involved a complete change in attitude; he contrasted the "class-minded teacher" with the teacher who must "adjust . . . to individual needs" as follows:

> The conventional conception of teaching is "doing something to the child" in contrast with "assisting the child to do something to himself." It is possible for a teacher to use individualized material exactly as she has always used textbooks, blackboards, etc. When so used, the material does not function and produces only conventional results. True individualization of instruction involves a change of view, a shift of emphasis. The maximal benefit from the new methods of work cannot be secured without such an awakening of the teacher to the fact of individual differences that she makes for herself the generalization that it is impossible for one

> human being to plan adequately for another and futile to try. Once this stage is reached, she will see that true teaching consists in "salesmanship" and "service." She will at once take the child into partnership and strive to help himself to learn. (p. 250)

The "Morrison Teacher" was envisioned by Morrison (1931) as a "supervisor" of instruction for mastery — "pretest, teach, test the result, adapt procedure, teach and test again to the point of actual learning" (p. 81).

Synthesis of the future role of the teacher in order to individualize instruction was presented by Caldwell and Courtis (1924). The trend, as they described it, was for the teacher to serve as an educational manager. The components of diagnostics, instructional variables, and testing for mastery levels were projected into the system.

> Levels of development of knowledge and skill will be more objectively and scientifically defined than they have ever been . . . Individuals will do such work as is most required for their own development. The individual himself, as he matures, will have an ever enlarging share, under guidance, in choosing his activities and taking charge of his own education. (p. 156)

THE EMERGING CLINICAL TEACHER

A thirty-year void in the literature was evident until Swenson (1962) and other proponents of individualized instruction deliberated the question, "Why has so little progress been made?" Jackson (1962) defined the teacher as a variable who functions in terms of both the child and/or the learning task, and further stated that:

> Providing for individual differences . . . calls for the creation of an educational climate in which the psychological complexity of both the student and the teacher is recognized and respected. (p. 90)

Swenson (1962) reflected the view:

> Individual teachers . . . have competence in setting the stage for learning and directing the learning drama in such a way that each participant may plan his role so as to realize optimum success for himself and for his fellow actors, individually and as a company. (p. 288)

Schwartz (1967) conceptualized the role of the Clinical Teacher for individualizing instruction for the handicapped as one of a "Diagnostician-Educator." He chronologically traced this role through its one hundred years of development and synthesized his findings. He subsequently (1971,a) translated these historical aspirations into a teacher preparation program for teachers of exceptional children based upon these competencies.

Wolfson (1968) departed from the teacher-as-doctor analogy (Diagnostician-Prescriber) and defined the role of the teacher as one "... of consultant and resource person to the learner ... a manager of the classroom environment" (p. 362). He stated that the teacher should be "more like a travel consultant... open minded, responsive ... and allow ... for self-direction.... She would help pupils learn to plan, to evaluate and to consider alternatives" (pp. 360-362). This work was a purely theoretical treatise with no preparation program indicated.

The University of Pittsburgh (U.S.O.E., 1968) justified their Model of Teacher Training for the individualization of instruction, and as one index of the federally-supported models throughout the country, summarized the role of the teacher as:

> ... planning and conducting, with each pupil, programs of study and day-to-day lessons that are tailor-made to suit his learning requirements and his characteristics as a learner. (p. 1)

They stated that "Individualized Instruction demands a new partnership between the pupil and teacher to accommodate the human variable in learning" (p. 22).

Steen, et al. (1969) through Project PLAN, Los Angeles, California, sought to identify the new role of the teacher through a task analysis of teacher behaviors, and discovered that most teacher-classroom time was spent in organization and managerial activities. Therefore, there needed to be "... new emphasis for all teachers and ... the acquisition of new skills" (p. 1).

Ott, et al. (1971) in order to "... identify the types of knowledge teachers need as a background in order to consistently provide appropriate experiences for each child in their classrooms ..." (p. 1) surveyed the disciplines of social work, psychology and medicine. An analogy to education was drawn from these realms for they traditionally were concerned with treatment and personal contact. Results of this endeavor determined that diagnosis was the place to begin, before

> ... the practitioner can use this information to set appropriate treatment goals and to prepare an appropriate treatment plan within the limits of available resources. (pp. 2-3)

Merrill (1971), in a secondary teacher-education program, conceptualized the role of the teacher in Project STEP as functioning as a team member: horizontally, in terms of specified behaviors; vertically, in terms of level of preparation.

Indicative of a national direction toward the development of a teacher with specified skills and competencies was the recent statement of the National Council for the Accreditation of Teacher Education experimental standards (1971):

> Clinical teaching involves the student in the diagnosis and "treatment" of the individual problem, under the guidance of an experienced teacher. (p. 5)

TEACHER PREPARATION PROGRAMS

There were indications that teacher preparation programs, both pre-service and in-service training programs, were making major changes in their content and process components in order to ensure that teachers would be able to individualize instruction. This review now focuses on the changing role of the teacher in terms of individualizing instruction, and the teacher education programs. The N.E.A. (1899) reported that:

> In spite of all the theory that we offer to students in regard to the method of teaching, they will always teach largely as they have been taught; that is, even with adults the tendency to imitate is a very marked characteristic, and shows itself very plainly in teaching. If a normal school professor himself teaches in one way and still expects his students to follow essentially a different way with children, he is likely to be greatly disappointed. . . . One of the very best ways, therefore, for a normal school to secure good teaching from its students is for the faculty itself to impart instruction essentially in the same way in which it hopes to have the students impart it. (pp. 853-854)

INDIVIDUALIZED INSTRUCTION: AS A PROCESS

The Committee on Normal Schools of the N.E.A. (1899) reported:

> A few years ago almost every school had its fixed, ideal course of study, the gauntlet of which every child that remained in school had to run. At present, this is not true. There is no constant course of study. It is variable. It is tentative. The course of study is beginning to be as variable as individuals. This is as it should be, and it should be expected in this nascent period of pedagogics. (p. 842)

It was not surprising that the search of the literature revealed diverse means of meeting the specific teacher competencies that were desired plus a dearth of research studies in the general area of teacher education.

Saettler (1968) summarized the teacher role in the pre-1900 era as "Anyone could and did" (p. 30). The basic theoretical considerations of those days ". . . are still retained in teacher education programs today: (1) that teaching consists in imparting knowledge, and (2) that all that is necessary to impart this knowledge is simply to know as much as is to be imparted" (p. 30).

Some of the earliest teacher training institutions attempted to develop ". . . techniques of transmitting information and of controlling learner behavior" (p. 46).

Search (1894) obviously relied upon the selection of teachers and/or administrative provisions to effect individualizing of instruction.

> It is apparent that this method of work calls for strong teachers, but that is no loss to the school. The teacher cannot rely merely upon the preparation of the previous evening to meet the demands of the day. She must be equally ready upon a hundred points. Nothing will successfully carry her through her work except good previous training and wide general preparation. The schools of Pueblo are well blessed in teachers in this class. (p. 269)

There was no indication of a pre-service and/or in-service training program for their teachers.

Presented herein are selected comments of experts in a round table discussion on observation as a means of training teachers, (N.E.A., 1901).

> G. STANLEY HALL noted that any one method of training teachers is, in the main, wasteful of time. Observation by outlines was criticized as being somewhat too mechanical. On the other hand, it was argued that definite directions are necessary, but that these outlines should be varied in character to suit the needs of the student observing.
>
> MR. GAYLORD suggested a plan of sending a student to observe a lesson with the purpose of telling or dramatizing in the psychology class what takes place on the part of both child and teacher. This report is to indice careful, concrete observation and a sympathetic attitude on the part of the observer. Objections were made to his plan on the ground that the teacher observed may be displeased with such a method.
>
> MISS HUGHES, London, England, spoke of the necessity of observation of children as well as of teaching. Speaking of her training school in England, she said that the student teacher was required to give a party to her class before beginning to teach it. "Unless she is fit to play with her class, she is not fit to teach it."

> DEAN JAMES E. RUSSELL of Teachers College, Columbia University, said that he had no use for a perfect model school; that the student teacher should learn to teach in a practice school; and that experienced teachers are incapable of getting good from the observation of perfect teaching.
>
> PROFESSOR DIMON ROBERTS, of the Normal School at Ypsilanti, Michigan, suggested that at least half of the teaching in a normal training school should be done by the regular critic. (pp. 294-295)

Kennedy (N.E.A., 1901) reported results of the Batavian plan indicating the following: the high school population "increased 30 percent in the past year . . . improvement in the work of students and in the general esprit de corps . . . every test shows the advancing standing of scholarship" (p. 300). Hall (N.E.A., 1901) referred to the above findings as a change in the "mechanics of the schools" (p. 30). Andrew (1905) stated that:

> Emerson said to his daughter something to this effect, when she was going away to school, "It matters little where you go to school, but it makes all the difference in the world with whom you study." (p. 135)

He subsequently became an advocate of smaller class sizes in the colleges and normal schools.

> In so doing classes will be reduced to the minimum number, and the teacher will do real, personal work instead of pouring down upon all at once. The innovation will become contagious and every large school in this country will fall into line within the next decade. (p. 134)

Erskine (1906) maintained:

> That the educational world of today regards individual instruction as its most vital issue is attested in many ways: the quantity of literature on the subject as well as the action of one of our universities in returning to the preceptorial system, which, in itself, is the recognition of the individual as an entity in teaching rather than the class. (pp. 639-640)

During the early 1900's, Young (1907) came the closest to approximating the relationship between pre-service training of teachers and the improvement of instruction through the use of "The Teacher's Self-Examination":

> Has each pupil profited by my presence in the classroom today? Has the mode of instruction employed enabled me to give the class, taken as a whole, more help, more insight, more inspiration than any other mode would have permitted? (p. 68)

In attempting to reflect some of the concerns about teacher preparation, Young stated that:

> Actual teaching is beyond question the most effective of all ways of learning the art, but it does not follow that it should not be preceded by special preparatory instructions as to the work to be done, or that the first teaching should not be attempted under the sympathetic guidance of teachers of experience, present and assisting at the time and suggesting improvements afterwards. This variety of learning by practice is far removed from turning the novice loose upon helpless children with nothing but his inexperience to guide him. (p. 8)

One of the first indications that professional teacher educators were concerned with the area of teacher effectiveness was when Burk and Washburne (1918) reorganized the teacher preparation program at the State Normal School, San Francisco.

> Normal schools have from the beginning struggled in a network of courses in pedagogy and educational psychology. Until recently no one questioned the inane practise of giving inexperienced normal students a year or more of lectures on the abstractions and complexities of an abortive psychology and on the theoretical solutions of hypothetical problems as preparation for teaching live children. Fortunately the practical world is beginning at last to call the normal schools to an account, and an effort is being made to reorganize completely the normal school professional courses.
>
> A personality of initiative, enthusiasm, responsibility, sympathetic motherliness toward children and intuition for handling classroom problems — this seems the essential characteristics of the good teacher. Can this personality be developed or produced? At any rate to produce such teachers is the problem teacher-making institutions have set themselves. (p. 832)

The initial use of specific problems to discover "intuitive" means of problem solving and then reinforcing these "learnings" through "... clinical experience in the classroom [was] the concrete foundation formed for the professional work in education and sociology" (p. 834).

INDIVIDUALIZED INSTRUCTION: AS A CONTENT

Caldwell and Courtis (1924) predicted the onset of present-day student teaching practices when they stated that the future preparation of teachers would require "Teachers of greater skill, paid larger salaries than at present . . . will be assigned to those who are beginning their school careers" (p. 157).

Subsequent to the 1917 California ruling against individualizing instruction and the withdrawal of these materials from both the State Normal School and the classrooms, Washburne was forced to leave the state to install the individualized program in Winnetka, Illinois. He first relied upon the selective process of identifying teachers for individualizing instruction. Washburne and Marland (1963) concluded:

> Most of our choices proved right. But about one new teacher out of ten was unable to adapt to our situation and had to be dropped after the first or second year. One or two others, out of ten, needed so much help that we would not have employed them if we had anticipated the difficulty of helping them become really effective. (p. 124)

Therefore, they were forced to rely almost completely on supervision and pre-school orientations as the mechanism for implementing individualized instruction.

Recognizing the inadequacies of these provisions plus the fact that no teacher preparation program at that time was involved in individualizing instruction, Washburne (1932) concluded that "The right sort of teacher training is to our thinking the most serious need in the educational world today" (p. 170). Subsequently, Washburne and Marland (1963) reported:

> In 1928 we conducted a six-week summer training course at the University of Minnesota, with demonstration classes taught by some of the best Winnetka teachers. We required all new appointees to the Winnetka schools to attend this course. The course proved so very successful, that thereafter, for the next twelve years, we conducted it independently in Winnetka as "The Winnetka Summer School for Teachers." This was open to teachers from any schools, but was required of all new teachers appointed to the Winnetka schools.

> Even then we were not fully satisfied. It was impossible in six weeks of lectures, seminars, and observations to undo the habits and techniques learned by teachers trained for dealing with classes rather than with individuals, to teach them to organize group and creative activities, to give them insight into the causes of undesirable behavior of children and how to deal effectively with children who exhibited such behavior. (pp. 124-125)

Therefore, in 1932, Washburne organized the Graduate Teachers College of Winnetka which functioned for the next twenty-two years "... for the training of teachers in the revolutionary ideas, techniques and processes of the Winnetka Schools" (p. 204). Washburne (1932) described the college thus:

> This graduate training college is itself organized on an individual basis so that each student works out, with advice, his own curriculum. His work consists of seminars and conferences for planning and assimilating his reading and practical work, of carefully planned reading in each of the various fields he is studying, and particularly of a large amount of actual work with children right in the classroom. (pp. 173-174)

Morrison (1931), as an administrator, obviously relied upon on-the-job training as the final stage of teacher training. The following, in 1926, appeared to indicate a precursor to performance-based teacher education:

> The most that the school of education can do is to train him into the capacity of sound and effective methods of educational study, to put him in possession of the technology of his calling, to equip him with that body of knowledge and capable use thereof which makes him an educational scholar.
>
> His academic department ought not to grant a teaching degree until it is assured that the candidate is pedagogically equipped to teach ... his supervisory officer should be capable of guiding him in his further professional and academic study until youth has hardened into the mature habit of taking it for granted that study is never ended ... ends only when he arrives at pedagogical maturity and trustworthiness based upon conviction and not upon conformity. (pp. 583-584)

This author was unable to ascertain that Parkhurst and/or any of her proponents of the Dalton plan made any pre-service or in-service training provisions for the perpetuation of their programmatic format; it was assumed that the structure of the instruction provided the necessary constraints within which the teacher operated.

Courtis (1929) described Detroit Teachers' College program in "Training Teachers for Individual Work," and demonstrated the only statistical study found in the literature showing the relationship between the effect of individualizing reading instruction for children and/or supervision and/or preparation of teachers for this function. Beginning in 1922, with a "... carefully-controlled experiment" in individualized reading materials and proceeding through five trial periods using teacher training and/or general/intensive supervision as the variables studied, Courtis concluded that:

> Individual methods employed by teachers who have not the individual point of view are of relatively little value. It is fundamental, therefore, to give each teacher the ideal of adapting her work to the needs of each individual child. (p. 255)

Furthermore:

> 1. [that] individualization of instruction involves a radical change of point of view in teachers;
> 2. that the most effective way to bring this change about is intensive and continuous supervision by an expert;
> 3. that teacher-training courses ... are not in themselves productive of power ... and that more effective forms of supervision and teacher training must be devised before there can be efficient individualization of instruction. (pp. 253-254)

INDIVIDUALIZED INSTRUCTION: AS A PROCESS AND A CONTENT

In retrospect, according to Trent and Cohen (1973) the rebirth of interest in individualizing instruction on the college level, and its subsequent reflection in the classroom, stemmed both from the dissatisfaction of students as to the relevancy of content and method of instruction and from the availability and usability of the new educational technology. Swenson (1962), stated:

> In the preservice preparation of teachers ... those responsible for the professional education of teachers must somehow also practice individualization while preparing their students to practice it. No matter how earnestly they talk and write about individualization, the talking and writing will have less than optimum effect unless they practice individualization of learning experiences in their instruction of those who will subsequently be inducted into the teaching profession. (pp. 287-288)

> Teachers are themselves so different that their readiness for accepting responsibility for the individual development of their pupils is bound to vary widely. Their learnings, as they prepare for teaching, must vary as their learning goals vary; hence, the importance of helping them accept responsibility for dealing with individual differences among pupils as one of their professional goals. (p. 291)

Swenson denied the applicability of any one recipe-type teacher preparation program for teaching individualized instruction by individualization, but, rather maintained the inclusion of the following components necessary for "teaching individualization through example" (p. 300).

> 1. College teachers should know the students in their classes.
> 2. College teachers should consider readiness of their students for learning what they are taught.
> 3. Assignments should be adapted to individual background, ability, and need.
> 4. Instructional material should be adapted to individual use.
> 5. Teaching techniques should be varied enough that students may observe their suitability for different purposes and make choices among them as to their helpfulness.
> 6. Co-operative planning of learning should certainly be experienced by the college student.
> 7. Evaluation of student progress should be done in relation to individual backgrounds, abilities, and total situation. (pp. 300-301)

While teacher preparation programs using individualized instruction were few, there were indications showing positive research results in individualized instructional programs in higher education (Trent and Cohen, 1973). Most emphasis on the re-formulation of the role of the teacher and the translation of this role into the instructional format was found in prototype teacher preparation programs where individualization of instruction was introduced as content material. Producing teachers who would be able to transfer their own experiences in individualized instruction to those of children in the classroom were among the objectives of these prototypical programs.

"Individualized Instruction demands a new partnership between the pupil and teacher to accommodate the human variable in learning . . ." (U.S.O.E., 1968, p. 22). The University of Pittsburgh organized a program for ". . . preparing new professionals and upgrading the licensed practitioners to individualize instruction" (p. 1) based upon planning with each student and then teaching according to the plan. Accordingly, greater flexibility was stressed:

> because instructional modes will be used which allow for different rates and styles of learning [and] . . . students assume more responsibility for making decisions about their training. (p. 2)

Steen, et al. (1969) in Project PLAN emphasized reinforcement theory in their preparation program designed to train teachers as managers of instruction. Reinforcement of specific objectives, performance criteria, and conditions for performance were stated to ensure eventual transfer into the classroom. They stated that the teacher trainee was responsible for learning and the PLAN consultant for facilitating that learning; they concluded that the most important variables for teacher development

> . . . have been the individualization of the techniques used by the PLAN consultant and the involvement of the teacher trainee in decisions about his own behavior. (p. 6)

Dodl (1970), involved in the development and implementation of elementary teacher models, projected the inclusion of individualized instruction on a pre-service level; he utilized simulation modeling with direct feedback to ascertain the attainment of competencies.

Mitchell, Santmire, and Howard (1970) contracted with thirty-four prospective elementary school teachers at the University of Rochester. As individual learners they:

1. identified their own deficiencies in teacher preparation
2. developed instructional objectives for amelioration
3. selected activities appropriate to tasks
4. determined evaluation procedures to test attainment of objectives.

Results were positive in that ninety percent of the students ". . . felt that in terms of their present needs and professional goals the course had been valuable" (p. 364). This study concluded that "85% felt that individualized instruction courses of this type should be made available to students on a much wider basis" (p. 364).

Scanlon and Brown (1970) reviewed the literature on in-service training designed to enable teachers to perform the tasks relevant to individualizing instruction in terms of implementing Individually Prescribed Instruction (IPI) in selected schools in Pennsylvania, Delaware, and New Jersey.

The investigators concluded that ". . . training programs for teachers that practice what they preach needed to be developed . . . a retraining program . . . that is individualized about individualization" (p. 63). Retraining appeared "to overemphasize the mechanics of the system"; indications pointed to the necessity of developing a "conceptual model of individualization [as] . . . part of the retraining. (p. 63)

Trent and Cohen (1973) in reviewing the research in individualizing instruction for college youth revealed "paradoxical" results reflective of the summary by Dubin and Taveggia (1968) that there were no outstanding characteristics attributable to improvement of instruction.

SUMMARY AND SYNTHESIS

The review of the historical and research literature spanned some one hundred years of specified programming for the individualization of instruction for children and their teachers. The array of information substantiated the claim (Edling, 1971) that there was no one way to individualize instruction.

The varied educational formats suggest a framework based upon a concept of a matching model of instruction designed to enhance the teaching-learning environment in order to change definitive social and/or academic behaviors of children. These models require unique teacher competencies to implement a particular version of individualized instruction. As both the formats of instruction and the expected behaviors of teachers varied, so did the provisions for the training and preparation of the teachers to perpetuate the systems.

Few of the studies utilized research designs and/or evaluation techniques. No one provision appeared to have more promise than any other, in terms of its specified objective of changing the behavior of children and/or their teachers.

The common objective of most of the individualized formats was to change the social and/or academic behavior of either the child or his teacher. The common components that appeared varied in degree of emphasis within the specified framework. Several individualized instructional formats attempted to match specified instructional objectives to the varying aptitudes of the learners with alternative instructional strategies.

The early workers were explicit as to what they expected of children in terms of academic and social behaviors. They manipulated the teaching environment to produce the appropriate results. They relied upon the process of the defined individual play of instruction to produce the teacher behaviors that would effect the achievement of the expected objectives.

Subsequently, some programs reflected a change of emphasis to the acquisition of knowledge about the content of individualization of instruction on the part of the teachers as a means of producing the appropriate behaviors in the children. This was done with the expectations of eliciting the changing teacher role commensurate with the particular version of individual instruction.

Presently, the trend appears to be dualistic in that the desired behaviors of the children are explicitly stated and the teacher competencies are both knowledge and field-based to effect the anticipated changes in children.

An aura of omnipotence appeared to emerge as a major factor in individualizing instruction for both children and their teachers. Historical evidence suggested that this omnipotence was a prevalent factor in the perpetuation of any particular framework for individualizing instruction. It was generally believed that the teacher was the all-prevailing factor; necessary strengths and all-pervasive competencies were designated and expected in terms of changing the behaviors of the children. Subsequently, the stress appeared to fall upon the materials, techniques, and administrative provisions of the learning environment of the particular formats. Presently, the omnipotence has shifted to highly-structured systems for individualizing instruction for both children and their teachers.

This review of the related historical and research literature concerned with individualizing instruction for children and their teachers recognizes that individualized instruction in the classroom has been concerned with more than assignment of children to independent work based only on general ability; furthermore, it has been seen as more than the manipulation of time as the prevailing factor in individualization. Interest has been demonstrated in devising instructional formats based upon other learning characteristics. Consequently, the changing role of the teacher as a diagnostician, designer, and manager of learning within the framework of individualized instruction has emerged. This new role for teachers requires the inclusion of these competencies on the preservice level of teacher education.

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CHAPTER 3

WELCOME TO THE SYSTEM: ORIENTATION AND GUIDE TO THE CLINICAL TEACHER CURRICULUM

Welcome to the System is designed to provide an orientation and guide for using the Clinical Teacher Competencies for Special Education. The outcome of this teacher education curriculum is the preparation of Clinical Teachers of mildly handicapped children. Graduates of the five-year program, NCATE and state approved, are awarded the Bachelor's and Master's Degrees and Florida's Rank 2 Certificate in Exceptional Child Education in four specific areas: Mental Retardation, Emotional Disturbance, Specific Learning Disabilities, and Varying Exceptionalities.The individualized and performance-based teacher preparation curriculum enables the Clinical Teacher functioning in public school resource centers to (1) identify individual pupil entry levels, learner characteristics, and desired outcomes, (2) provide individualized instruction based upon a match of task, learner, and resource characteristics, and (3) monitor pupil and curriculum performance and provide feedback for the ongoing improvement of learning and instruction.

The requisite academic and social behaviors for succeeding in the regular classroom are the desired objectives of special education for mildly handicapped children (educable mentally retarded, learning disabilities, and emotionally disturbed). The Clinical Teacher competencies of observation, diagnosis, intervention, and evaluation necessary for achieving these outcomes are the products of the teacher education curriculum.

Preparation of the Clinical Teacher for Interrelated Areas of Special Education at The Florida State University represents a decade of planning, design, try-out, and evaluation of an innovative approach to solving the manpower problems and challenges of the field. Linking the best of traditional practices with the most promising technological advances available in instruction, the Clinical Teacher concept and provision offers a viable alternative to the numerous dilemmas confronting special education today. Part 1 of this chapter briefly discusses the problems that have confronted special educators during the past twenty years. Part 2 identifies alternative strategies for solving the dilemmas. The Clinical Teacher Model is presented in Part 3. Part 4, A User's Guide, provides procedures and responsibilities for students.

Clinical teaching, or *individualizing of instruction*, is an historical aspiration for implementing the fundamental philosophy of the right to an education for *all* children.

Individual differences among learners, teachers, and instructional systems will persistently refute the advocacy of a singular alternative to the diverse and complex problems confronting education. Exceptional children and youth and the heritage of special education offer dramatic testimony to this inescapable reality.

The renewed interest and activity in individualizing instruction (clinical teaching in a cascade of services) provides adequate support for the search for alternatives. Innovative models of today run the risk of simply replacing old orthodoxies with new ones unless thoroughly evaluated, documented, and described as to performance, effectiveness, and efficiency. Above all, early adoptors in colleges and universities, local educational agencies, and state departments of education need to bridge the disparity gap between the realities of changing needs and existing practices. Students, teachers, parents, and administrators must become intimately and inextricably involved in the content and process of change.

> Long before the year 2000, the entire antiquated structure of degrees, majors and credits will be a shambles. No two students will move along exactly the same educational track. For the students now pressuring higher education to destandardize, to move toward super-industrial diversity, will win their battle. (Toffler, 1970, p. 272)

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THE DILEMMA

Educational historians will record the events of the first seventy-five years of the twentieth century as a monumental effort in meeting society's commitment to educate *all* children and youth. Simultaneously with the quantitative growth in educational opportunities for these children, new issues and needs prevented the attainment of traditional goals through existing practices. Special target populations of handicapped and culturally diverse children present an array of academic and social differences that defy any singular approach to their attaining desired educational objectives. Powerful social and political forces such as recent court decisions have demanded that special educators address themselves to the change of existing practices to meet today's realities of due process for honoring basic commitments for all children. Alternative instructional delivery systems for exceptional children and for the preparation of their teachers have rapidly emerged in response to these changing needs.

While the nineteen fifties and sixties were decades of remarkable growth in efforts to educate the handicapped, this period revealed enormous dilemmas. The persistent gaps between those children served and unserved, professional manpower supply, demand, the nature of teacher preparation, and the efficacy of current practices and services illustrate the scope of these problems.

EXCEPTIONAL CHILDREN

Reviewing the prevalence of services for exceptional children from 1922 through 1969, Kirk (1972) concluded:

> 1. Approximately one-half of the children with mental retardation and one-half of the children with speech impairments were being offered special educational services.
> 2. Approximately one-third of the crippled and one-third of the visually handicapped were being served.
> 3. Less than one-quarter of the children who were deaf and hard of hearing, or who were emotionally disturbed, or those who had other health handicaps (including specific learning disabilities) were being served.
> 4. Of the estimated number of all handicapped children combined, only 38 percent or three-eighths were being offered special education services in 1969. (p. 30)

Clearly, the goal of serving all exceptional children remains unfulfilled under current provisions and practices.

MANPOWER

Shortages of special education teachers and supportive personnel in all areas of exceptionality have paralleled this period. Cruickshank and Johnson (1958) reviewed the factors that led to the "minimal need of 100,000 new special education teachers in 1953-54" (p. 27), and suggested:

> The shortages of teachers also means that educators in service are going to have to exploit their imagination to the fullest in providing ways to supplement the present available supply of teachers and thus possibly be able to serve more children. (p. 28)

Mackie (1962) "estimated that 200,000 are needed and only about 50,000 are available" (p. 1). In addition to the question of numbers, equal concern was voiced over the lack of empirical evidence for existing programs.

> The major roadblock to adequate educational opportunity for these children is the lack of scientifically-tested knowledge on how to best provide for these children. (p. 1)

Kirk (1965) summarized these needs and offered the following suggestions:

> Under the pressure of extreme shortages of professional personnel, a major issue becomes whether to (a) focus on immediate needs in terms of the numbers of special educators without regard to quality; (b) concentrate on quality in the preparation of professional personnel, even though it may mean a decrease in the numbers thus prepared; or (c) find a radically new method of accomplishing both goals at the same time. (p. 102)

Heller (1968) stressed "quality preparation" as the basic objective of the federally-funded teacher education programs for special education personnel. Reporting that ". . . 177 students participated in this program in 1960, 4,910 in 1964, and 11,593 in 1967 (p. 540)," Heller also indicated that at least sixty percent of the nation's exceptional children continue to receive less than adequate special educational services. Striving for the reduction of this gap and for the ". . . continued improvement of professional preparation programs," Heller pledged the support of the Division of Training Programs as an instrument for encouraging "needed change" within colleges and universities. (p. 540)

PROVISIONS AND SERVICES

Enabling legislation authorizing special educational services has produced organizational patterns with programs and instruction based upon medical and psychological categories. By the 1960's concern was expressed over the lack of evidence of the efficacy of this system. Sporadic questioning of this practice emerged as new categories such as "brain-injured," "learning disabilities," "emotionally disturbed," "multiply handicapped," and others were added; these new categories increased the concern of those who were already criticizing existing practices.

Gallagher (1960) and Cruickshank, et al. (1961) clearly questioned the relevance of the term "brain-injured" for educational planning. Trippee (1966) highlighted this concern by extending the problem to teacher preparation and certification.

> Research indicates that when diagnosticians are asked to classify children, they are unable to agree on those children who are disturbed or those who are brain injured or often those who are retarded.
>
> To compensate and atone for the injustice thus perpetuated, state education departments spell out criteria for children to meet before acceptance into a special class program and provide financial inducements to local districts to establish programs. For added respectability, the states also spell out certification requirements for teachers to insure that the children secure competent aid and assistance. At this point, institutions of higher learning rush in to provide courses for tired teachers after school. But why sweat it. The teachers get their credits and credentials, the schools have approved programs and the state can point with pride to the existence of quality, competent programs.
>
> The courses that are offered emphasize the characteristics and needs of special groupings as though the children in special classes fit neatly into such clean, crisp categories. If the teacher is at all on the ball, he soon learns that the required courses too often have little to do with the job he has to do and the academic learning that takes place most often prepared him for a world that does not exist. (pp. 26-27)

Lord (1967), in a critique of current classification practices, proposed a major departure based upon the model of the rehabilitation center which offered service to all the handicapped. He discussed "a service-centered school, less concerned with the medical diagnosis as a basis for classifying children and more interested in grouping children in terms of specific education and remedial needs" (p. 53).

Although somewhat apprehensive towards the newer terms, such as "emotionally disturbed and neurologically impaired," Lord also commented favorably on the label of "learning disabilities" as replacing the earlier use of the "brain injured" concept.

Obviously, as additional "categorical" groups of exceptional children were identified as being in need of special education, i.e., learning disabilities, multi-handicapped, the above problems posed by Gallagher, Cruickshank, Trippe, and Lord were presenting serious challenges to local schools, state educational agencies, teacher educators, and federal-funding sources. In our historical attempt to serve all children, we continue to add labels for identification purposes, develop new legislation for each presumably different group and supportive services, and then add to our teacher certification and preparation curricula to reflect these additions.

In spite of frequent expressions of concern over the growing categories of disability groups with their accompanying generalizations and standardizations, it remained for a unique set of circumstances to stem the tide. Professional, social, political, and judicial judgements occurred nearly simultaneously and stimulated the process of re-evaluation and the search for alternatives.

CLINICAL TEACHING

Early expressions of possible alternatives to this growing dilemma were described by Kirk (1962), Lance (1966), Schwartz (1967a, 1967b), and Dunn (1968), all concerned with the education od the retarded and their teachers. Kirk's paradigm of "diagnosis and remediation of learning difficulties" stimulated Lance's definition of "clinical teaching . . . as a term denoting adequate diagnosis of individual needs and abilities, prescribing an educational program with specific, differential approaches to meet these specific needs of the individual, and the implementation of the program in the school setting" (p. 100). Schwartz traced the historical development of the Clinical Teacher for special education from 1866 to 1966 and advocated an integrated teacher education curriculum focusing on the generic competencies of diagnosis and remediation for all teachers of exceptional children. Dunn clearly questioned the justification of special classes for children of diverse cultural backgrounds, classified and labeled as "educable mentally retarded," and advocated the need for "clinical teaching."

Reflecting on a decade of rapid growth and growing concern over the efficacy of special education for mildly-handicapped children classified as "educable mentally retarded" (Goldstein, Moss, and Jordan, 1965), and Dunn (1968) stimulated a renewed interest in the "clinical approach," i.e., differentiating between the "regular educators" and the "special education program," for serving children with normal, mild, and severe learning difficulties.

> Existing diagnostic procedures should be replaced by expecting special educators, in large measure, to be responsible for their own diagnostic teaching and their clinical teaching. Inthis regard, it is suggested that we do away with many existing disability labels and the present practice of grouping children homogeneously by these labels into special classes. Instead, we should try keeping slow learning children more in the mainstream of education, with special educators serving as diagnostic, clinical, remedial, resource room, itinerant and/or team teachers, consultants, and developers of instructional materials and prescriptions for effective teaching. (p. 11)

JUDICIAL DECISIONS

Concurrent with professional concerns over the efficacy of existing provisions for the education of exceptional children were parent associations and minority group advocates raising related questions. Local and state educational agencies were pressured through the courts to justify the constitutionality of existing testing, classification, and labeling practices with children. A series of judicial rulings had a great deal of impact: Hobson vs. Hansen (1967) in Washington, D.C., resulted in Judge Wright upsetting educational "tracking" provisions; Arreola vs. Board of Education (1968) in Orange County, California, specified parental involvement and the limitations in the testing and placement of exceptional children.

Subsequently, numerous court decisions (Ross, DeYoung, and Cohen, 1971; Vaughan, 1973) on behalf of exceptional children and their parents have dramatically altered public school special education provisions in California, Pennsylvania, and Massachusetts. The impact of these judicial events coupled with an emerging professional concern facilitated the search for more effective services for a growing number of exceptional children, their families, and their teachers. The right to an education for each individual child, regardless of handicapping condition, is clearly on the way to becoming a reality (Gilhool, 1973).

ALTERNATIVES

The field has responded with an array of new concepts, models and practices that promise renewed optimism towards achieving the time honored aspiration of assisting each individual exceptional child to attain his maximum potential.

The fundamental rights of all children for quality educational opportunities have been reaffirmed. However the major changes are reflected in the *processes* for achieving these goals. New concepts and instructional systems for delivering innovative and alternative special educational services to a variety of exceptional children, new professional preparation programs designed to produce the varied competencies, and new evaluation strategies for improving instruction are highlighted in this section.

GOALS

"Basic Commitments and Responsibilities to Exceptional Children" (Reynolds et al., 1971, pp. 181-187), rededicates special educators to the following ideals:

1. All children have the right to a free quality education.
2. Quality education meets the needs of individual children.
3. The fundamental purposes of special education are the same as those of regular education.
4. Special education provides for those unique individual needs that cannot otherwise be met by regular education.
5. Special education programs are integral parts of a comprehensive school program.
6. Exceptional children should receive services based upon desired academic and social behaviors.
7. A variety of special educational services is necessary in every school system.
8. Teaching, research and service in colleges and universities should focus on the desired pupil behaviors and the professional competencies required to produce these behaviors.

Marland (1971) reaffirmed our nation's commitment to provide complete and equal educational opportunities for all exceptional children and youth by 1980, indicating that of the approximately seven million handicapped children identified as requiring special education only forty percent now receive any such service. Davis and Wyatt (1971) reported that although an oversupply of teachers exists in our public schools, there remains a critical shortage of teachers with specialized competencies needed to serve handicapped children in both special and regular education. Gallager (1971) pointed out that in addition to the persistent needs of exceptional children and their teachers, there are alternative special education provisions stimulated by "... a growing level of disappointment or disillusion with the existing system" (p. 1).

CHANGING CONCEPTS

Categorical versus noncategorical issues (Meyen, 1971), innovative interrelated projects (Schwartz, et al., 1972), mainstreaming (Reynolds and Davis, 1971), and alternative instructional services (Deno, 1973) for exceptional children and their teachers have been presented and debated at numerous state, regional, and national conferences. Supported by the United States Office of Education, Bureau of Education for the Handicapped, and National Center for the Improvement of Educational Systems, topical meetings conducted regionally have served to spotlight conceptual and programmatic changes occurring in the field.

The categorical/noncategorical issue appeared to have been resolved at the 1971 conference conducted at the University of Missouri (Meyen, 1971). Consensus emerged suggesting a noncategorical approach for mildly-handicapped children with learning problems, e.g., educable mentally retarded, learning disabilities, or emotionally disturbed, with high probability of their return to regular classes. On the other hand, maintaining categories for more severely handicapped, e.g., severely retarded, blind, and deaf, appeared feasible as they are less likely to be integrated into the regular class.

A variety of new models, systems and practices reflecting research and development activities supported by the United States Office of Education, Bureau of Education for the Handicapped and Bureau of Educational Professional Development were reported by Schwartz, et al. (1972). Of the twenty-one projects reviewed, seven referred to competency-based instruction, while four utilized either computer-assisted or computer-managed instruction. The project trainees were being prepared to work with children of either preschool or school age; or indirectly with teachers, parents or other school personnel. Thirteen of the projects referred to the diagnostic-remedial approach to instruction for children with four utilizing contingency-management techniques as their primary approach for children. Four other projects advocated a task analysis or sequence of behaviors approach — selecting a desired objective after complete diagnostic evaluation and teaching the requisite skills to enable the learner to achieve the desired objective. The environments in which the trainees would function ranged from full-time special education classroom to part-time resource rooms, regular classroom, and special community facilities. Similarly, the target population of exceptional children served ranged from mild, to moderate, to severely handicapped.

Reynolds and Davis (1971), and Deno (1970), reported recent efforts in improving the competencies of teachers working with handicapped children in regular classrooms through the support of the Office of Education, Bureau of Educational Personnel Development, currently identified as the National Center for the Improvement of Educational Systems. Characterized as "mainstreaming," this rapidly-growing approach prepares regular classroom teachers and other school personnel in providing for handicapped children as an alternative to the "labeling," "self-contained special classes," and other practices of the past.

Although these controversial issues are by no means resolved, dramatic changes in the delivery of special education services and in the preparation of their teachers reflect these emerging concepts and practices. MacMillan (1973) summarized "the issues and trends which have led special education to be in a state of transition" (p. 3), citing the critical issues confronting special education:

Mild Retardation and Minority Children
Noncategorical Approach for Delivery of Services
Avoidance of Deficit Labels
Responsibility of States to Provide Educational
  Programs for the Severely Retarded
Early Identification and Intervention
Accountability and Special Education
Assessment of Procedures
Use of Paraprofessionals.

INSTRUCTIONAL ALTERNATIVES

New systems, models, strategies and technologies for special education have rapidly emerged during the current decade. These changes offer viable alternatives to existing practices and promise a solution to the many dilemmas in the field. According to Gallagher (1971):

> We need substantial changes to the entire system and not merely at the end product "where the rubber meets the road," or where the teacher meets the children. We need to change not just the tires, but to redesign the whole vehicle. Our attitude toward the whole delivery system of services must be altered. (p. 1)

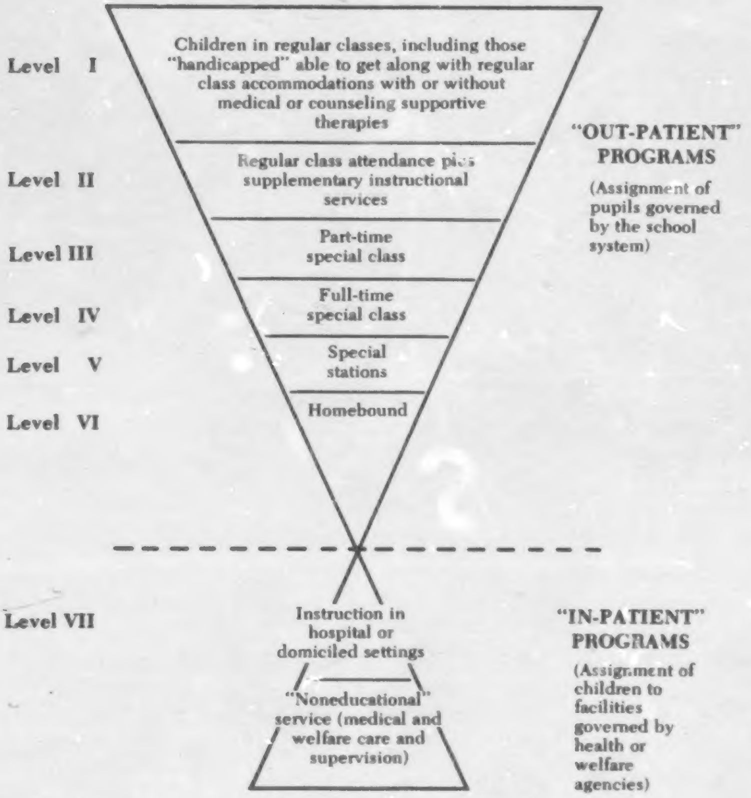
Several systems are described in the literature (Deno, 1970; Haring, 1970; and Schwartz, 1971) for redesigning services for exceptional children, for special educational curricula, and for the preparation of teachers. Common components of the system are *objectives, procedures,* and *evaluation.* Design, try-out, feedback, and revision are on-going functions in each of the components for the continuous refinement and improvement of the instructional system.

As a system for producing desired changes, Deno (1970, see Figure 2, p. 78) describes "The cascade system of special education service . . . required to control the learning variables deemed critical for the individual case" (p. 235). Suggesting a performance-based accountability model, this system provides for feedback, revision and evaluation based upon the impact on individual children rather than upon the number served.

Placement within the cascade is facilitated by critical decision-making variables identified by Reynolds and Balow (1972). Deno describes the cascade system as a "tapered design . . . to indicate the considerable difference in the numbers of children anticipated at the different levels" . . . (p. 14). Functioning as a "diagnostic filter," the system provides literally for all children.

> The cascade model assumes that children are seldom all able or all handicapped. They more frequently present their teachers with a marble cake of aptitudes and dysfunctions that cannot be adequately described by categorical classification of children on an "he is or he isn't" basis. The organizational model recognizes that children need to be programmed individually, that the only fundamentally meaningful class, for educational purposes, contains an N of one. (p. 16)

Figure 2. Deno's Cascade (1970)


Level I
Children in regular classes, including those "handicapped" able to get along with regular class accommodations with or without medical or counseling supportive therapies
Level II
Regular class attendance plus supplementary instructional services
Level III
Part-time special class
Level IV
Full-time special class
Level V
Special stations
Level VI
Homebound
"OUT-PATIENT" PROGRAMS
(Assignment of pupils governed by the school system)
Level VII
Instruction in hospital or domiciled settings
"Noneducational" service (medical and welfare care and supervision)
"IN-PATIENT" PROGRAMS
(Assignment of children to facilities governed by health or welfare agencies)

Haring (1970) presented a comprehensive review of contemporary scientific advances in "The new curriculum design in special education." Stressing "the technology of teaching or teaching according to applied scientific principles of behavior" (p. 30), Haring forecasts a leadership role for special education in the emerging sophistication of instructional objectives, technology, and evaluation.

> New curriculum design in Special Education shows a convergence of two strong influences: (1) The recognition of the importance of individualized instruction; and (2) the growing effect of the procedures of experimental analysis with an emphasis on

> the individual child and the conditions which, when applied to well-defined behaviors, produce specific results. In contrast to the design of the curriculum of the past, the new design in the curriculum of special education is broader, possibly more content-oriented, certainly directed at the behavioral components of learning, totally defined in behavioral terms, and managed within a system. (pp. 29-30)

CLINICAL TEACHER

OUTCOMES

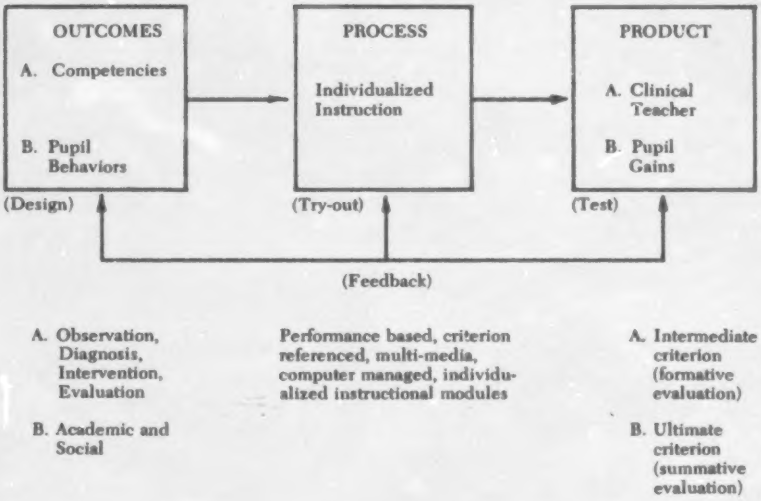
Schwartz (1967, 1971) advocated and designed a new teacher education curriculum for special education, synthesizing generic clinical teaching competencies of *individualizing instruction* for producing commonly desired behaviors in mildly handicapped exceptional children. Employing instructional systems, technology, and evaluation strategies as the *procedures* for attaining the outcomes (teacher competencies and pupil behaviors), the Clinical Teacher Model for Interrelated Areas of Special Education offers a viable alternative to the dilemmas confronting the field. Behaviorally specified and measurable performance objectives for both the clinical teacher and the exceptional children to be served are defined within the individualized instructional system. Focusing on educationally desired pupil behaviors, rather than existing medical and psychological categories, the prototype program offers performance-based instructional modules monitored by a computer management system. The instructional system is designed to enable the Clinical Teacher, functioning within the learning resource setting of the "cascade of services," to produce the academic and social skills in mildly handicapped children required for their succeeding in the regular class. Evaluation and research designs, as an integral component in the system, will build the data base for documenting and disseminating the effectiveness of the Clinical Teacher Model for special education.

PROCEDURES

Three essential elements of the system are the conceptual models, instructional strategies, and evaluation design. The conceptual model contains major goals and task analysis of the objectives necessary for their attainment. The instructional strategy specifies the explicit enabling objectives, resources selected and/or designed, assessment criteria for determining mastery, and test items for measuring attainment. The evaluation design provides formative and summative procedures and data for the on-going improvement of instruction. The relationship between demonstrated Clinical Teacher competencies and the produced pupil behaviors in the target population of mildly handicapped children provides the documentation as to the effectiveness of the teacher preparation model as a viable alternative for the field.

The instructional system is presented in Figure 3.

Figure 3. Instructional System
(Schwartz and Oseroff, 1972)


OUTCOMES
A. Competencies
B. Pupil Behaviors
PROCESS
Individualized Instruction
PRODUCT
A. Clinical Teacher
B. Pupil Gains
(Design)
(Try-out)
(Test)
(Feedback)
A. Observation, Diagnosis, Intervention, Evaluation
B. Academic and Social
Performance based, criterion referenced, multi-media, computer managed, individualized instructional modules
A. Intermediate criterion (formative evaluation)
B. Ultimate criterion (summative evaluation)

Performance-based teacher competencies and behaviorally specified pupil objectives are contained within individualized instructional modules. The module, generated from a task analysis of the objectives and the conditions under which it may be attained, is the unit of instruction for both the teacher education curriculum and the exceptional child behavioral continuums.

The strategy for designing modules was provided the Clinical Teacher Model by Dodl (1969), and is presented in Figure 4, page 81.

Figure 4. Task Analysis
(Dodl, 1969)

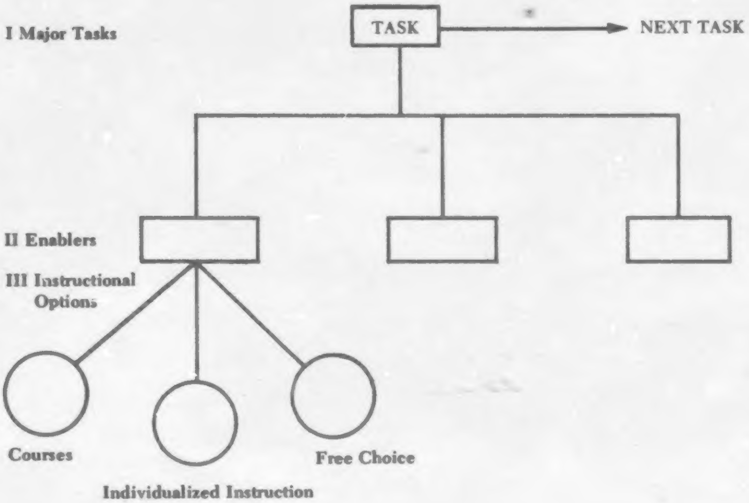


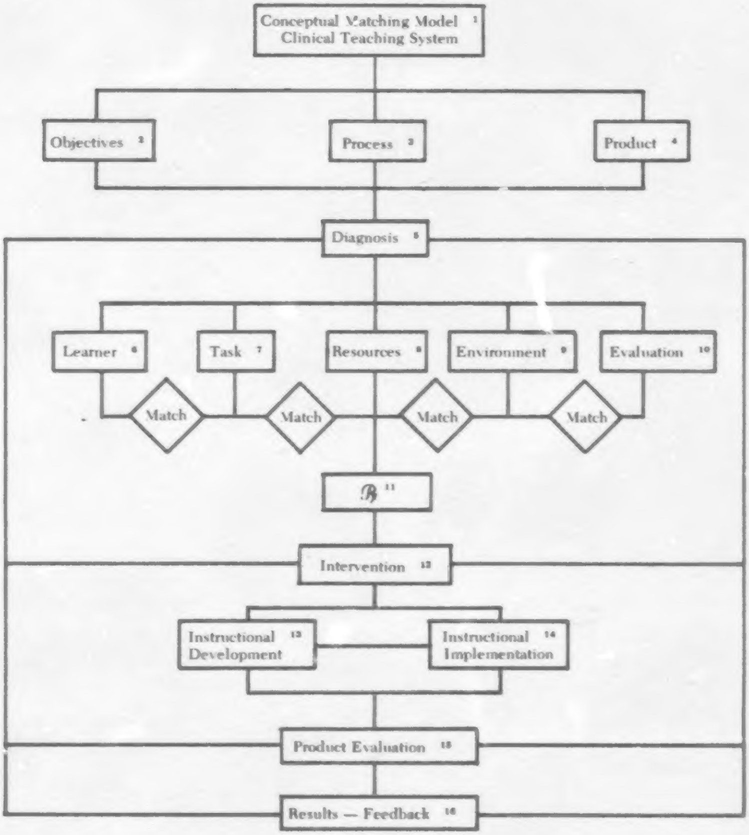
Figure 4 presents a conceptual model of the task analysis strategy employed in the Clinical Teacher program. The approach offered in this strategy reflects the intent to employ the computerized management control system available to the program. A teacher education model which was developed for use in the field of elementary education (Dodl, 1969), and was a product of an interdisciplinary team using a systems approach, shows promise as a general model for teacher preparation. This model is sufficiently adaptable to the interrelated areas project to attempt its implementation in this program. Furthermore, time and effort would be saved by avoiding the costs of design and initial implementation. Such a model lends itself to the definition of specific evaluation procedures by its behavioral orientation.

The model is shown simplistically in Figure 4. A basic assumption is that the goals in the education of teachers can be described by defining competency areas known as major tasks. These tasks, in aggregate, constitute the definition of what the product of a teacher education program is—the very best teacher that it is possible to produce. In order for the prospective teacher to learn and perform these major tasks he must have the requisite knowledge, experience, and skills which enable him to perform each task. These enablers, as they are called, are a set of sub-objectives. The model provides for the existence of multiple sets of instructional options which will lead the prospective teacher toward being able to satisfactorily perform a behavioral objective.

INDIVIDUALIZING INSTRUCTION

The essential strategy for attaining the educational outcomes of the Clinical Teacher Model is the *process* of individualizing instruction. The Conceptual Matching Model for individualizing instruction is presented in Figure 5, below, with a key on pages 83 and 84.

Figure 5. Conceptual Matching Model
(R. Schwartz, 1973)


Conceptual Matching Model 1
Clinical Teaching System
Objectives 2
Process 3
Product 4
Diagnosis 5
Learner 6
Task 7
Resources 8
Environment 9
Evaluation 10
Match
Match
Match
Match
℞ 11
Intervention 12
Instructional Development 13
Instructional Implementation 14
Product Evaluation 15
Results — Feedback 16

KEY

1. The conceptual model of the Clinical Teacher System represents a visual display and narrative descriptors of objectives, process, and products of the interrelated elements and attributes of the instructional system.
2. The desired outcomes of special education for mildly handicapped children (educable mentally retarded, learning disabilities, and emotionally disturbed) are to produce the required academic and social behaviors for succeeding in the regular classroom. The Clinical Teacher education program produces the teacher competencies of observation, diagnosis, intervention, and evaluation necessary to achieve these objectives.
3. The process-interactive component of the system provides individualized instruction based upon a *match* of appropriate diagnosis, intervention, and evaluation that integrates the objectives, the process, and the products of the instructional system.
4. The Clinical Teacher produces and documents the behavioral gains in exceptional children, demonstrating the competencies through the use of the individualized instructional strategy.
5. Diagnosis is a continuous matching of (1) learner entry level and characteristics, (2) task characteristics, (3) available resources and their characteristics, (4) environmental characteristics, (5) evaluation activities.
6. Through systematic observation and formal and informal assessment, the CT identifies and specifies individual learner (1) entry levels, (2) terminal objectives, (3) modes, styles, e.g., visual, auditory, kinesthetic, dependent, independent, time;
7. Analyzes and selects appropriate tasks matched to learner characteristics which specify the subordinate objectives in the sequence necessary for mastery of terminal objectives;
8. Selects available materials and strategies matched to learner and task characteristics for maximizing the effectiveness and efficiency for accomplishing the task;
9. Engineers learning environment, i.e., facilities, conditions, reinforcers, for optimum management of instruction based upon learner, task, and resource characteristics;
10. Assesses student and instructional performance by selecting and/or designing appropriate measures;

11. Writes individual pupil profile based upon pre-instructional summary containing characteristics of learner, task, resource, environment, and evaluation items;
12. Plans and writes a performance contract based upon the diagnostic profile;
13. Selects and/or designs an appropriate instructional module;
14. Conducts the instruction, continually monitoring student performance and curriculum effectiveness;
15. Assesses changes in pupil behaviors in terms of the outcomes specified in the performance contract;
16. Reports curriculum effectiveness and efficiency by describing, documenting, and relating produced pupil gains to individualized instructional strategy.

FORECAST

Mildly handicapped children with individual behavioral needs require a short-term specialized learning resource room. The clinical teacher systematically observes, diagnoses and transmits an educational profile containing pupil entry behaviors and desired behavioral objectives via a desk teletype terminal to a regional modulation center for analysis, prescription, and retrieval. Within minutes, a computer print-out is returned containing instructional objectives, requisite subordinate skills, criterion measures, and multi-media resources and options, field tested and matched for prescribed student performance.

The clinical teacher designs and manages the intervention strategy utilizing the packaged, programmed module with the individual student. The learner is provided appropriate instructional options and ongoing assessment. Both student and teacher chart progress towards desired outcomes. Product assessment, therefore, is the ultimate criterion measure of the efficacy of the individualized and personalized instructional system. Feedback to the modulation center modifies any of the components, and improves subsequent instructional packages, while building the data base for evaluation of instruction.

The computer managed instructional system provides the student and teacher with an ongoing record of performance in terms of clearly defined and measurable academic and social behaviors. Returning to the mainstream of regular class membership, the individual child performs the behavior necessary for succeeding with his peers and may only occasionally require prescribed assistance from the Clinical Teacher in the learning resource room. (Adamson and Van Etten, 1970, pp. 531-535)

The forecast, when fully operational, will fulfill the promises of the "brave new world" for special education. Blackman (1964) concludes: "It includes a compulsion on the part of the instructional specialist to delineate clearly and meticulously the pedagogical steps and stages by which the learner is to achieve desired terminal behaviors" (pp. 29-30).

A USER'S GUIDE

This section contains student directions for using the individualized, performance-based, instructional modules of the program. Following a brief overview, program requirements and student responsibilities are provided in detail.

INDIVIDUALIZED INSTRUCTION

Individualizing of instruction is the major *process* strategy employed in this program. The process is defined as (1) assessing individual learner entry level over pre-stated objectives, (2) negotiating the desired objectives, procedures, resources, and time-line for their attainment, and (3) establishing criteria upon which judgements will be made concerning their successful completion.

This *process* encourages on-going evaluation between learner and teacher for the improvement of instruction.

PERFORMANCE-BASED COMPETENCIES

Performance-based competencies are a critical element in the *process* of individualizing instruction. The Clinical Teacher Competencies of OBSERVATION, DIAGNOSIS, INTERVENTION, and EVALUATION are demonstrated on four levels of proficiency. Early awareness, knowledge, performance, and product objectives are varying levels of performance-based competencies. Figure 6, page 86, presents the four levels. See Appendix A for a detailed position statement concerning performance-based competencies.

Figure 6. Levels of Objectives for Performance-Based Teacher Education Programs

OUTCOMES	CRITERIA	CONTEXT
PRODUCT Pupil achievement and gains as a consequence or result of teacher action on the performance of pupils.	Time sampling of teacher behaviors and pupil achievement.	Employment (full time) in actual classroom situation (1-2 yrs.), and Internship (1 quarter).
PERFORMANCE Teacher competencies and skills.	Assessment of the overt observable pedagogical skills and behaviors of the trainee to determine teaching mastery of the specified competencies.	Practicum (quarterly) in actual classroom situation.
KNOWLEDGE Understanding of behaviors, concepts, principles, and attitudes.	Assessment of knowledge, understandings, and attitudes of trainees.	Laboratory or simplified training conditions (days or weeks) of restricted or microteaching simulations.
EXPLORATORY Early awareness and orientation.	Not measured.	Curricula content. Activity or event in which to engage, i.e., visit a resource room in a local school and assist teacher and pupils for a minimum of 10 hours.

INSTRUCTIONAL MODULES

Instructional Modules are the units of instruction which systematically enable the trainees to acquire and demonstrate the clinical teaching competencies. Each module contains enabling objective(s) for attaining the major competencies. The module format presented in Figure 7, below, is numerically referenced and contains an estimate of standard student time required for mastery.

Figure 7 Module Format

COMPETENCY

MODULE CLUSTER

MODULE

PURPOSE — what the trainee is expected to accomplish

BEHAVIORAL OBJECTIVE — levels of objectives (see Figure 6, page 86.)

Module Outcome: terminal behavior

Assessment Context: conditions under which behavior will be performed

Assessment Criteria: proficiency level

INSTRUCTIONAL RESOURCES/OPTIONS/ACTIVITIES — faculty, readings, seminars, multi-media, field placements, etc.

SAMPLE TEST ITEMS — products, papers, essay tests, demonstrated field performance, etc.

PROGRAM REQUIREMENTS

General degree and course requirements are available in the University *Bulletin* and College of Education *Programs in Teacher Education*. Specific program requirements for the specialization of Interrelated Areas of Special Education are presented as follows:

MAJOR SPECIALIZATION SEQUENCE

Junior Year: First Qtr., Fall. Clinical Teacher Concept — knowledge of historical, contemporary, and future aspects of clinical teaching.

Second Qtr., Winter. Observation Skills — knowledge and performance of systematic methods of obtaining and reliably reporting maturation, academic, and social behavioral data of normal and exceptional children ages three to twelve in local public schools.

Third Qtr., Spring. Diagnosis — knowledge of formal and informal assessment instruments for normal and exceptional children.

Senior Year: First Qtr., Fall. Diagnosis — performance of administration, scoring, interpretation, and profiling of normative and criterion-referenced tests with exceptional children in local public schools.

Second Qtr., Winter. Intervention — knowledge and performance of planning, conducting, and documenting an individualized instructional strategy for producing academic and social gains with exceptional children in local public schools.

Third Qtr., Spring. Evaluation — knowledge of assessing pupil and curriculum performance necessary for determining the effectiveness and efficiency of the strategy and for building the data base for improving instruction.

Master's Year: Individually planned and negotiated graduate program of studies to include full-time (12 qtr. hr.) internship in a special education resource room in a public elementary school. Based upon the student's personalized needs assessment, the graduate program will be designed to relate to and improve clinical teaching competencies.

OTHER COURSE REQUIREMENTS AND PERTINENT PROGRAM PLANNING INFORMATION

Observation, diagnostic, and intervention seminars are scheduled for five consecutive quarters (Qtr. 1, 2, 3 — Junior Year and Qtr. 1 and 2 — Senior Year) requiring a combination of field work in local public schools and seminars.

Quarter 1, Fall:

PCC 371 Clinical Teaching Seminar (8)
PCC 471 Diagnostic Seminar II (8)

Quarter 2, Winter:

PCC 372 Observation Seminar (8)
PCC 472 Intervention Seminar (8)

Quarter 3, Spring:

PCC 373 Diagnostic Seminar I (8)
PCC 474 Evaluation of Clinical Teaching (3)

Other Course Requirements:

PCC 305 Introduction to Special Education (3)
PCC 326 Survey of Mental Retardation (3)
PCC 416 The Disadvantaged Child (3)
PCC 417 Emotional & Social Prob. of Child. & Yth. (3)
PCC 475 Education of the Intellectually Gifted (3)
PCC 501 Seminar: Behavioral Theory as Applied to Exceptional Child. & Adults (3)
PCC 537 Prob. of Child. & Yth. with Visual Disabilities (3)
PCC 626 Advanced Study of Mental Retard.: Soc. & Educ. (5)
PSY 315 Child Psychology (3)
PSY 317 Educational Psychology (3)
PSY 317F Educational Psychology Field Experience (1)
ASP 344 Oral Language Development (3)
ASP 345 Survey of Speech Problems (3)
IDD 400 Intro. to Educ. Technology & Systems (3)
EMD 401 Measurement and Evaluation in the Classroom (4)
EME 401 Schooling in American Society (4)
PCB 410 Communications and Human Relations (4)
EMC 503 Legal Aspects of Education (4)
IDB 533 Correction of Reading Disability (6)

(Offered Every Quarter)
PCC 590-4 Field Laboratory (12)
PCC 591 A, B, C, D Independent Study (1-4 each)
PCC 597 Supervised Research (VAR)
PCC 598 Supervised Teaching (VAR)
PCC 599 Master's Thesis (VAR)
PCC 800 Master's Comprehensive Exam. (0)
PCC 801 Thesis Defense (0)

STUDENT RESPONSIBILITIES

General "Student Rights and Responsibilities" are described in the current *Student Handbook*, Florida State University. Specific responsibilities for trainees in the Interrelated Areas of Special Education are unique to the program. The highly-individualized, personalized, performance-based curriculum, emphasizing field-based practicum in local public schools, requires a high degree of personal and interpersonal skills. Independent learning, self-motivation, personal reliability, social interactive skills with peers and faculty, with an awareness of consequences of behavior, are co-requisite skills for pre-professional educators in this program. Although these critical "complementary skills" are not explicitly specified as "competencies," they must be demonstrated throughout the campus and field-based portions of the program.

The process of individualizing instruction in the Interrelated Areas curriculum provides an unusual opportunity for student-faculty interaction. Performance-based instructional modules enabling the student to enjoy a high degree of independence in learning, simultaneously offer creative interactions in both seminars and faculty conferences. This personalized feature requires students and faculty to relate to each other in a highly professional manner which models a desirable professional employment situation.

1. *Independent Learning* is the self-motivational pursuit of the specified competencies. Due to the depth of the competencies required in each eight (8) quarter-hour course in the Major Specialized Sequence, the student is responsible for planning and allocating sufficient time to meet required proficiency levels. Although the terminal competencies and objectives in the curriculum are faculty determined, students are encouraged to utilize a variety of instructional resources, options, and activities to attain and demonstrate the competencies.

2. ***Seminars*** provide the opportunity for specific types of faculty/student interactions. *Specific focus instructional* seminars and *reflective* seminars facilitate interaction even though the specific purposes of each differ. The *specific focus instructional* seminar is designed and directed by the faculty to provide instruction on specifically-targeted issues. These issues generally serve to bring together (synthesize) the resources in the modules. In addition, students are encouraged both to identify topics for future seminars and conduct them if they desire. *Reflective* seminars are conducted in order to encourage a free-floating exchange of feelings and attitudes towards any program-related activity.

   Students are responsible for being prepared for meaningful in-depth discussion of *specific focus instructional* seminars. This means that students, knowing the scheduled topics, will have read the related resources in order to enter into meaningful discussions.

   Due to the nature of these scheduled seminars, i.e., synthesis of material unavailable elsewhere, students are responsible for attending *all* seminars.

3. *Resource Accessability* is provided in three locations. All resources are available both in the Interrelated Areas Resource-Seminar Classroom and in the Educational Resource Center of the College of Education Building. Selected books are placed on reserve each quarter in the FSU Library.

   Students are responsible for using these resources and identifying any resource needed but not available. In addition to the required resources necessary to achieve mastery over objectives, optional resources and activities are encouraged and should be negotiated during student/faculty conferences.

4. *Field Placements* are critical activities in a performance-based teacher education program. It is in the field placements that students demonstrate performance and product objectives with varying degrees of faculty supervision. All three levels of Junior, Senior, and Master's Trainees are dependent upon the field resources for acquiring and demonstrating competencies. Explicit arrangements have been made with each cooperating school through the College of Education and local county school personnel.

Students are responsible for complying with these arrangements which include the following:

1. Arrive on time and sign in.
2. Depart on time and sign out.
3. Dress appropriately as defined by each school.
4. If unable to attend a schedule field site, student must *call* before 9:00 a.m., both the school and Interrelated Areas offices.

It is the trainees' responsibility, both professionally and personally to "get along" with the cooperating teacher and all other school personnel. "On-task behavior" by the trainee facilitates "getting along" and increases the probability of successfully demonstrating Clinical Teacher competencies.

5. *Faculty Conferences, Negotiations, and Performance Contracts* are creative and interactive links between faculty and students in the performance-based curriculum. *Required* faculty/student conferences provide the framework for reviewing and facilitating student progress towards the attainment of specified objectives. The opportunity to negotiate optional objectives, resources, evaluation criteria, and time-lines are encouraged during these conferences. Performance contracts are the written agreements between faculty and students specifying the above.

   In addition, the students are responsible for arranging and following through on other conferences they may request. See Appendix B for sample performance contract.

6. *Mastery Learning and Grading* are aspects of performance-based instruction. Although many objectives contain specified mastery levels and criteria, others specify "satisfaction of the instructor." The student can negotiate with the faculty the basis for the instructor's judgement. Mastery of the specified Clinical Teacher competencies in the curriculum is related to the FSU equivalents by a point system.

   Specific mastery criteria and accumulated points for the grading system for each quarter are presented in writing to each group of students at the first class meeting. Individual student negotiation and contract of both mastery criteria and grading system for the specific quarter is encouraged. See Appendix C for sample grading scale.

   The student is responsible for knowing this mastery and grading system and its implications.

7. *Computer Management System* contains four reports: (1) Task Characteristics, (2) Learner Characteristics, (3) Student Performance, and (4) Summary. The management system is designed to collect data on student and curriculum performance and provides both faculty and students with information for monitoring progress as well as scheduling of instruction.

   The student is responsible for recording weekly, accurate information on the appropriate transaction forms for entering, updating, and completing modules. See Appendix D for sample logs.

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APPENDIX A

POSITION STATEMENT

1. *Definition:* A competency-based teacher education program specifies the competencies to be demonstrated by the student, makes explicit the criteria to be applied in assessing the student's competencies, and holds the student accountable for meeting these criteria. While at first glance this definition appears to depict a rather harsh, almost mechanistic process, nothing could be further from the truth. The competencies referred to are attitudes, understandings, skills, and behaviors that facilitate intellectual, social, emotional and physical growth in children. The student is held responsible for demonstrating these competencies, because they are necessary to teaching effectiveness. He may, however, help to determine either the competencies to be acquired, or the setting in which the competencies are to be demonstrated, or both. Three types of criteria are used to determine the student's level of achievement in these competencies: (1) knowledge criteria, which are used to assess the cognitive understandings of the student; (2) performance criteria, which are used to assess the teaching behaviors of the student; and (3) consequence criteria, which are used to assess the student's teaching effectiveness by examining the emotional and intellectual growth of his pupils.

   (from J. M. Cooper, W. A. Weber, and C. E. Johnson, (Eds.) *Competency-based teacher education 2: A systems approach to program design*. Berkeley, Calif.: McCutchen Publishing Co., 1973, pp. 14-15)

2. *Criteria:* The American Association of Colleges for Teacher Education (AACTE) Committee on Performance-Based Teacher Education has chosen to retain the term "performance-based" in the belief that the adjective itself is relatively unimportant if there is consensus on the question of what elements are essential in distinguishing performance- or competence-based programs from others.

There now appears to be general agreement that a teacher education program is performance-based if:

1. Competencies (knowledge, skills, behaviors) to be demonstrated by the person completing the preparation program are:
   a. derived from explicit conceptions of teacher roles;
   b. stated so as to make possible assessment of a student's behavior in relation to specific competencies;
   c. made public in advance.

2. Criteria for assessing competencies:
    a. are based upon and are in harmony with specified competencies;
    b. make explicit expected levels of mastery under specified conditions;
    c. are made public in advance.
3. Assessment of the student's competence:
    a. uses his performance as the primary source of evidence;
    b. takes into account evidence of the student's knowledge relevant to planning for, analyzing, interpreting, or evaluating situations or behavior;
    c. strives for objectivity.
4. The student's rate of progress through the program is determined by demonstrated competence rather than by time or course completion.
5. The instructional program is intended to facilitate the development and evaluation of the student's achievement and competencies specified.

These are generic, essential elements; only professional training programs that include all of them fall within the AACTE committee's definition of performance-based teacher education.

(from S. Elam Performance-based teacher education: What is the state of the art? AACTE *Bulletin*, 1971, *24*, pp. 6-7)

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APPENDIX B

SAMPLE PERFORMANCE CONTRACT

The Florida State University
College of Education
Division of Professional and Clinical Programs
Interrelated Areas of Special Education

PERFORMANCE CONTRACT

Student ______________________ Date: ______________

OBJECTIVE: ______________________________________

____

____

CONTEXT: ______________________________________

____

CRITERIA: ______________________________________

____

Due Date: ______________________

Trainee ______________________

Cooperating Teacher ______________________

Clinical Professor ______________________

Pass ______________

Fail ______________

COMMENTS:

APPENDIX C

SAMPLE GRADING SCALE FOR PCC 371 CLINICAL TEACHER CONCEPT

Activity	*Point Value*
1. Essay Tests CTC-1 (75) CTC-2 (100) CTC-3 (125)	300
2. Project (See requirements below)	200
3. Seminar Attendance	100
4. Complimentary Skills	50
Total Possible	650

Point Conversion for Grades
A = 580–650
B = 510–579
C = 400–509
D = 200–399

PROJECT REQUIREMENTS

Synthesis classifies objectives that are concerned with the learner's production of a unique response to an application task — that is, unique to him. His response would be based upon his synthesis of responses from one or more of the sub-categories below:

1. Production of a unique communication.
   Objectives related to the development of a communication in which the writer or speaker attempts to convey ideas or feelings to others.
2. Production of a plan or proposed set of operations.
   Objectives related to the development of a plan or proposal.
3. Derivation of a set of abstract relations.
   Objectives that require a combining of abstract elements into a new product.

The individual must complete the elements according to his relevant knowledge so that he can produce the appropriate product demanded by the application task — but the response must have unique characteristics. The response can satisfy this objective once only. If the desired response is to be routine, the objective is classified at the application level.

(from S. J. Drumheller. *Handbook of curriculum design for individualized instruction: A systems approach.* Englewood Cliffs, N. J.: Educational Technology Publications, 1971, pp. 20-21.)

APPENDIX D

COMPUTER MANAGEMENT SYSTEM TRANSACTION LOGS

THE FLORIDA STATE UNIVERSITY
CLINICAL TEACHER MODEL

MODULE ENTRY LOG

NAME ______________________ CURRENT DATE ____________

1. Student-Module Identification No. (C2):

____

Module No. (3 Digits) Social Security No.

2. Date of Module Entry (DE): ____ ____________
Month (2 Digits) Day (2 Digits)

3. Resources Utilized (Please spell correctly) (RU):

(1)____________________ (2)____________________

(3)____________________ (4)____________________

(5)____________________ (6)____________________

4. Time Spent (to the nearest 1/10 hour) (TIME):

____ __________

....

THIS SECTION FOR INSTRUCTOR USE ONLY

Pupil Styles (STYLE):

(1)____________ (2)____________ (3)____________

Individualized Instructional Strategy (IIS):

____

1 — Entry

THE FLORIDA STATE UNIVERSITY
CLINICAL TEACHER MODEL

MODULE TRANSACTION LOG

NAME ____________________ CURRENT DATE ____________

1. Student-Module Identification No. (C2)

____

Module No. (3 Digits) Social Security No.

2. Resources Utilized (Please spell Correctly) (RU):

(1)____________________ (2)____________________

(3)____________________ (4)____________________

(5)____________________ (6)____________________

3. Time Spent (to the nearest 1/10 hour) (TIME):

____

. . . .

THIS SECTION FOR INSTRUCTOR USE ONLY

	Product (PROD)	Product Proficiency (OBPRO)
(1)		
(2)		
(3)		

2 — Trans

THE FLORIDA STATE UNIVERSITY
CLINICAL TEACHER MODEL

MODULE COMPLETION LOG

NAME ______________________ CURRENT DATE __________

1. Student-Module Identification No. (C2):

____

Module No. (3 Digits) Social Security No.

2. Resources Utilized (Please spell correctly) (RU):

(1) ______________ (2) ______________

(3) ______________ (4) ______________

(5) ______________ (6) ______________

3. Time Spent (to the nearest 1/10 hour) (TIME):

____

....

THIS SECTION FOR INSTRUCTOR USE ONLY

	Product (PROD)	Product Proficiency (OBPRO)
(1)	______________	______________
(2)	______________	______________
(3)	______________	______________

Module Proficiency (MODPRO): __________

Date of Module Completion (DC): __________ / __________
Month (2 Digits) Day (2 Digits)

3 — Compl

CHAPTER 4

CLINICAL TEACHER COMPETENCIES FOR SPECIAL EDUCATION: AN INDIVIDUALIZED PERFORMANCE-BASED TEACHER EDUCATION CURRICULUM

The purpose of this teacher education curriculum is to provide the Clinical Teacher Trainee with the objectives and procedures for demonstrating specific competencies utilizing individualized performance-based instructional modules. The curriculum is presented in two parts: (1) Conceptual Model of the Clinical Teacher Competencies, and (2) Individualized Performance-Based Instructional Modules. This operational curriculum is the teacher education component for Interrelated Areas of Special Education at the Florida State University. The curriculum was designed, field-tested, evaluated, and revised, under provisions of a grant from the United States Office of Education, Bureau of Education for the Handicapped, as a Special Projects, Prototype, P.L. 91-230. Other components for implementing this curriculum are: (1) Welcome to the System, (2) Clinical Teacher Desired Pupil Behaviors:

An Individualized Reading Curriculum, (3) Clinical Teacher Desired Pupil Behaviors: An Individualized Arithmetic Curriculum, and (4) Documentation and Users Guide to the Computer Management System for the Clinical Teacher Curriculum.

This curriculum for producing the specified Clinical Teacher competencies in either pre-service and/or in-service teacher education programs can be utilized as an independent, free-standing product. Adapters and adopters are encouraged to select from existing components or utilize any other behavioral sequences for other targeted populations. The Computer Management System is a useful option for large numbers of trainees and for collecting performance data.

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CONCEPTUAL MODEL OF CLINICAL TEACHER COMPETENCIES

OVERVIEW

The goal of special education teachers for mildly-handicapped children (educable mentally retarded, learning disabilities, and emotionally disturbed) is to produce the required academic and social behaviors necessary for the children to succeed in the regular classroom. This Clinical Teacher education program produces the teacher competencies of observation, diagnosis, intervention, and evaluation required to achieve this goal.

The individualized and performance-based teacher preparation curriculum enables the Clinical Teacher functioning in a learning resource center to (1) identify individual pupil entry levels, learner characteristics and desired outcomes, (2) provide individualized instruction based upon a match of task, learner, and resource characteristics, and (3) monitor pupil and curriculum performance and provide feedback for the ongoing improvement of learning and instruction.

Selected Clinical Teacher Trainees enter the program with a commitment to the education of exceptional children. Instruction for early awareness objectives is provided during an initial orientation period. Knowledge of the Clinical Teacher concept is prerequisite to the performance competencies of observation and diagnosis, intervention, and evaluation. The ultimate criterion of the effectiveness of the instruction is pupil gain.

COMPETENCY OUTCOMES

Behaviorally specified and measurable outcomes for both the Clinical Teacher and the exceptional children to be served are explicitly defined within the individualized instructional system. The program focuses on educationally desired pupil behaviors rather than on existing medical and psychological categories. The program offers competency-based instructional modules. This instructional package is designed to enable the Clinical Teacher Trainee to achieve competencies necessary for producing academic and social gains in exceptional children. The special educator prepared with these competencies is a Clinical Teacher.

The conceptual models are based on the major Clinical Teacher competencies necessary to produce the desired behaviors in mildly handicapped children. Task analysis of each major competency produced the behaviorally specified and measurable performance outcomes. Mastery tests used for individualizing instruction precede each major competency. Although major competencies are independently conceptualized, overlaps among competency areas were built into the instructional sequence. For example, the knowledge objective for intervention is required for writing diagnostic profiles; and knowledge and performance skills of evaluation are interrelated with both diagnostic and intervention competencies. The following model displays the major competencies and their enabling components:

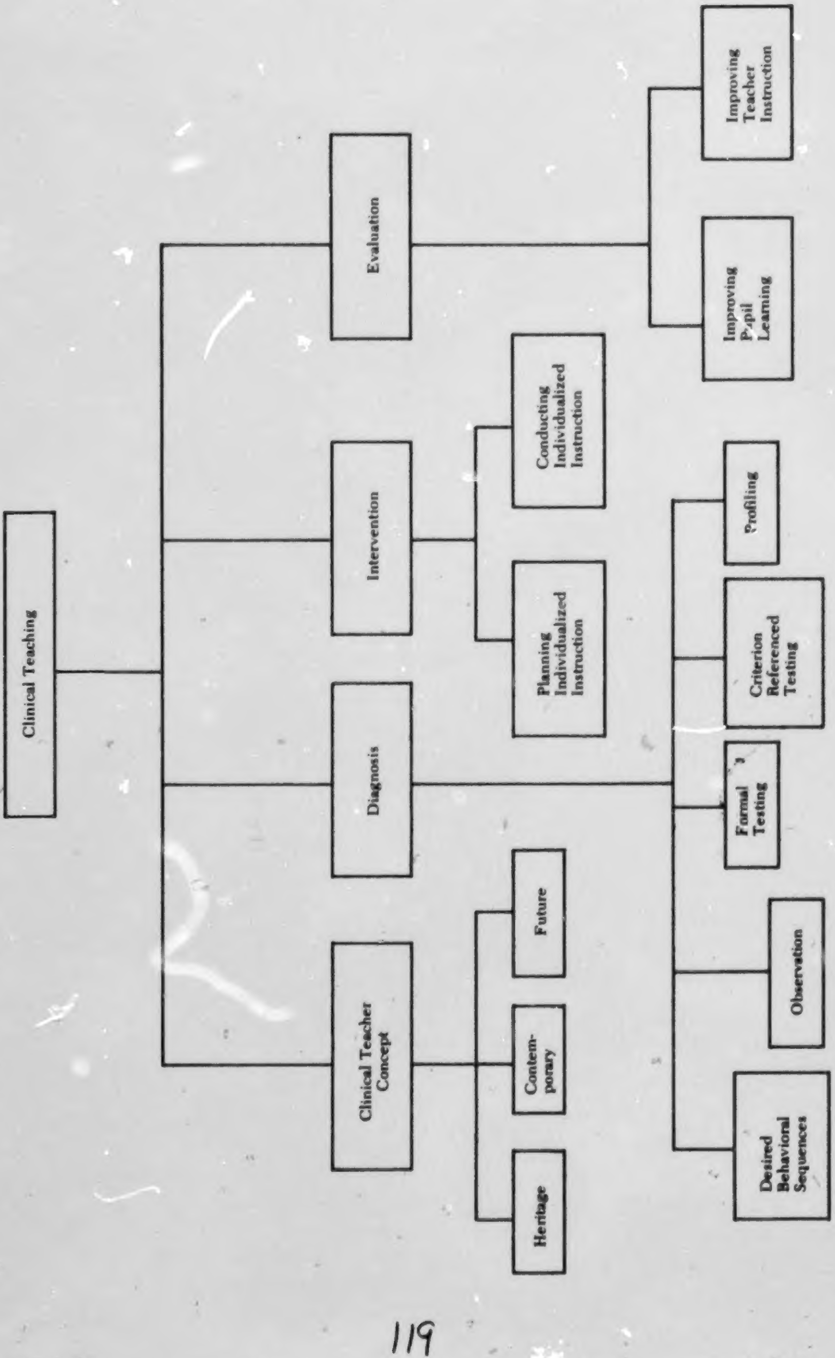
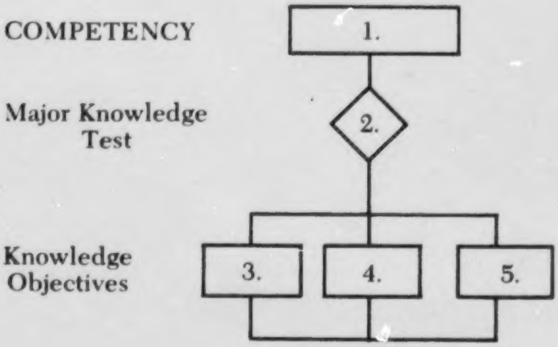

Clinical Teaching
Clinical Teacher Concept
Diagnosis
Intervention
Evaluation
Heritage
Contem-porary
Future
Planning Individualized Instruction
Conducting Individualized Instruction
Improving Pupil Learning
Improving Teacher Instruction
Desired Behavioral Sequences
Observation
Formal Testing
Criterion Referenced Testing
Profiling

FIGURE 8. CONCEPTUAL MODEL: CLINICAL TEACHER COMPETENCIES

FIGURE 9. CLINICAL TEACHER CONCEPT



COMPETENCY

1. The philosophy of individual differences, diagnostic and classification procedures, placement, and instructional strategies for exceptional children, linking the heritage of the field with current developments, offer the foundation for synthesizing generic desired pupil behaviors and necessary teacher competencies into a performance-based individualized instructional system for the future.

Major Knowledge Test:

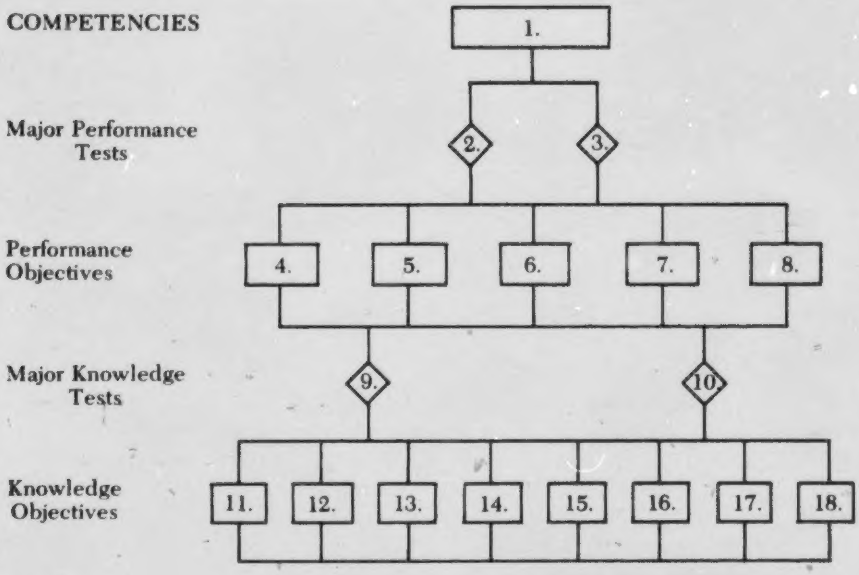
2. Describe the Clinical Teacher concept. Identify the essential elements of the model, linking the heritage and current developments in the field of special education to the future. Cite significant special educators and their contributions to the individualization of instruction.

Knowledge Objectives:

3. Synthesize the knowledge components of the medical model (1700-1900) including (1) the identification of philosophical principles of individual differences, (2) elements of diagnostic and classification procedures, (3) placement provisions, and (4) the relationship of these factors to instructional strategies.
4. Synthesize the knowledge components of the psychological model (1900-1968) including (1) the identification of philosophical principles of individual differences, (2) elements of diagnostic and classification procedures, (3) placement provisions, and (4) the relationship of these factors to instructional strategies.

5. Synthesize the knowledge components of the instructional system model (1970-) including (1) the identification of philosophical principles of individual differences, (2) elements of diagnostic and classification procedures, (3) placement provisions, and (4) the relationship of these factors to instructional strategies.

FIGURE 10. DIAGNOSIS


COMPETENCIES
1.
Major Performance Tests
2.
3.
Performance Objectives
4.
5.
6.
7.
8.
Major Knowledge Tests
9.
10.
Knowledge Objectives
11.
12.
13.
14.
15.
16.
17.
18.

COMPETENCIES

1. Diagnostic competencies enable the Clinical Teacher to (1) identify and specify individual pupil entry levels and learner characteristics and (2) prescribe desired objectives matched with learner characteristics and personalized instructional resources and strategies.

Major Performance Tests:

2. Observe systematically, assess formally and informally, identify the academic and social entry levels, and specify the learner characteristics.

3. Prescribe desired learner objectives, preferred learning styles, and individualized instructional strategies.

Performance Objectives:

4. Systematically observe academic and social behaviors.
5. Administer, score, and interpret norm-referenced tests.
6. Construct, administer, score, and interpret criterion-referenced tests.
7. Summarize the diagnostic data and identify individual learner entry levels and characteristics.
8. Write individual pupil profile and prescription based upon diagnostic summary containing learner entry level and characteristics, task characteristics, and goals and objectives.

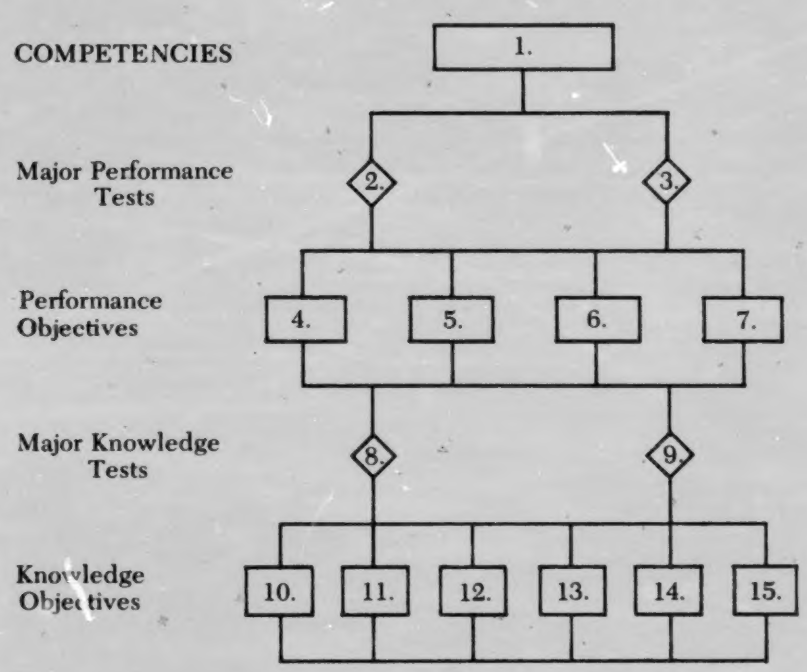
Major Knowledge Tests:

9. Describe the desired behavioral objectives (reading and arithmetic) for mildly handicapped children.
10. Describe the individualized instructional strategies, i.e., essential elements of observation, diagnosis, intervention, evaluation, and their relationships to clinical teaching.

Knowledge Objectives:

11. Become familiar with the clinical teaching behavioral sequences in reading and arithmetic.
12. Identify several additional sequences of objectives in reading and arithmetic.
13. Specify the essential elements of sequences common to those selected.
14. Identify the individualized instructional logic.
15. Identify the rationale for the specific formal diagnostic tests.
16. Identify the rationale for the specific observational systems.
17. Identify the rationale for the construction of informal assessment tests.
18. Identify the rationale for several instructional strategies.

FIGURE 11. INTERVENTION


COMPETENCIES
Major Performance Tests
Performance Objectives
Major Knowledge Tests
Knowledge Objectives
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COMPETENCIES

1. Intervention competencies enable the Clinical Teacher to plan, conduct, and document the individualized instruction required to produce academic and social behavioral gains in mildly handicapped children.

Major Performance Tests:

2. Plan and write a Clinical Teacher Individualized Pupil Plan for a mildly handicapped child in a resource room.
3. Implement and describe the individualized instructional strategy employed, observe and record pupil progress and performance, and write recommendations for improving instruction.

Performance Objectives:

4. Select the appropriate (1) modules containing objectives and available resources, (2) individualized instructional strategy, (3) motivational contingencies, (4) learning environment, and (5) progress checks for on-going and final evaluation.
5. Write performance contract containing the items above.
6. Conduct the planned instruction by (1) providing pupil learning materials, strategies, and environment, (2) observing and recording student progress towards objective, and (3) reinforcing successive approximations.
7. Document the produced pupil behaviors, describe individualized instructional strategy employed, and write recommendations for improving instruction.

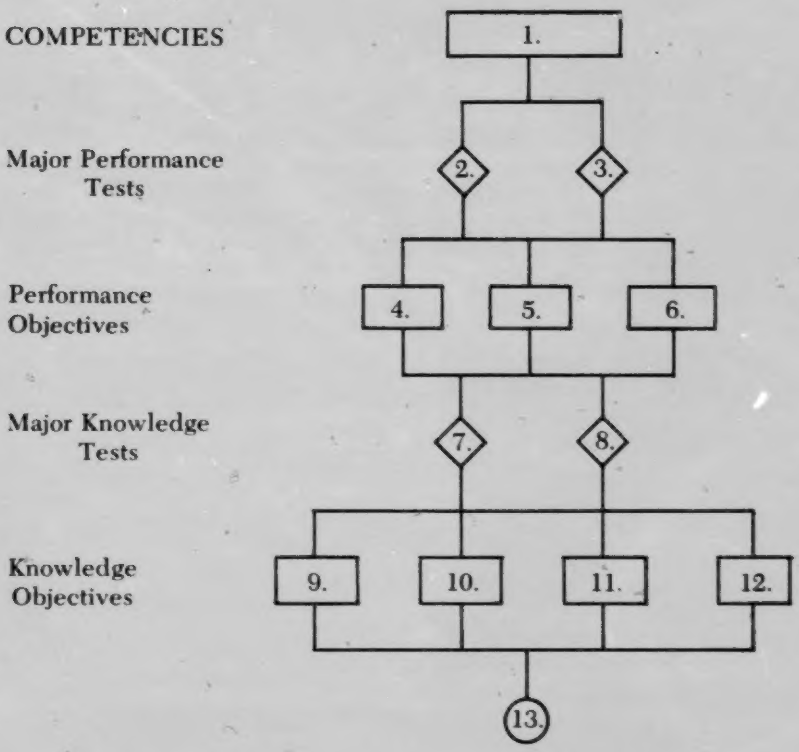
Major Knowledge Tests:

8. Describe the procedures for translating diagnostic profile and prescription of pupil into an individualized instructional performance contract.
9. Specify evaluation activities for ongoing and final assessment of pupil and curriculum performance.

Knowledge Objectives:

10. Identify available instructional resources.
11. Specify several instructional strategies for producing academic behaviors.
12. Specify behavioral engineering strategies for producing social behaviors.
13. Select appropriate instructional modules and individualized strategies.
14. Identify elements of performance contract.
15. Identify and define the rationale for evaluation. Describe the techniques, specifying progress check points and time-line.

FIGURE 12. EVALUATION


COMPETENCIES
Major Performance Tests
Performance Objectives
Major Knowledge Tests
Knowledge Objectives
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COMPETENCIES

1. Evaluation competencies enable the Clinical Teacher Trainee to assess pupil and curriculum performance necessary for determining the effectiveness and efficiency of the strategy and for building the data base for improving instruction. The performance results in the successful completion of an individualized, negotiated, Master's program of studies containing CTT purposes, objectives, criteria, and resources necessary for their attainment. The outcome of this competency is the improvement of both pupil and teacher performance.

Major Performance Tests:

2. Assess pupil and curriculum performance of assigned supervised field laboratory experience and revise curriculum when necessary.
3. Successfully complete individualized Master's program of studies.

Performance Objectives:

4. Monitor and document pupil and curriculum performance.
5. Assess, analyze, and report the effectiveness and efficiency of the instruction.
6. Specify and construct needed revisions and additions in instruction for both exceptional children and their teachers.

Major Knowledge Tests:

7. Design Master's program of studies based upon needs assessment.
8. Pass Master's comprehensive examination.

Knowledge Objectives:

9. Produce a personal needs assessment containing conceptual model, task analysis, and performance objectives.
10. Construct criterion-referenced mastery tests.
11. Specify knowledge objectives necessary for demonstrating performance objectives.
12. Systematically design Master's program of studies containing instructional modules.

Early Awareness:

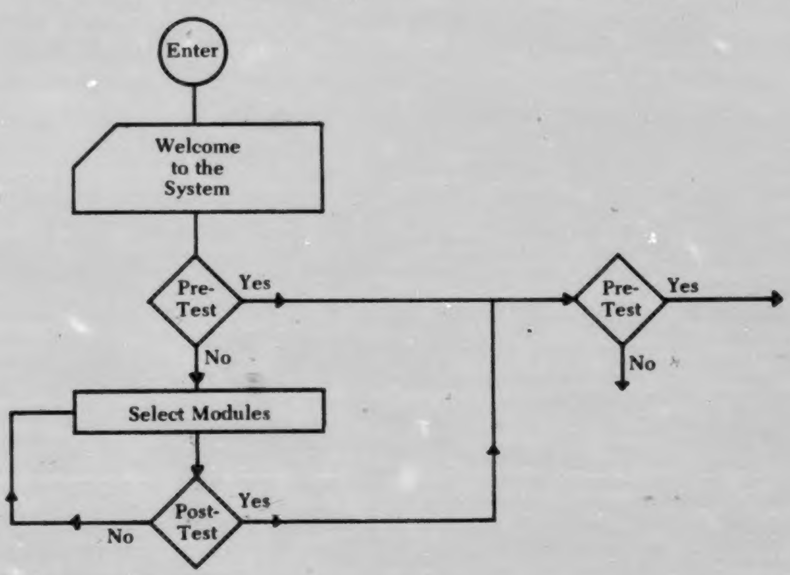
13. Become familiar with the promises, problems, and perils of re-entry into higher and deeper levels of leadership preparation programs for the handicapped.

PERFORMANCE-BASED INDIVIDUALIZED INSTRUCTIONAL MODULES

Instructional modules are the organizing elements of this performance-based teacher education curriculum. Modules systematically provide the trainee with pre-specified outcomes, instructional resources/options/activities, and criterion-referenced measures for demonstrating competencies. In addition to its powerful instructional usefulness, the module provides a format for computer-managed instruction.

After entering the program, the trainee takes the major competency test. The student performance enables the clinical professor and the trainee mutually to plan a personalized and individualized program. It is possible for individuals to successfully demonstrate mastery of either the entire competency or of individual modules at pre-test and proceed to the next major competency. Several modules may be entered simultaneously and completed at the student's individual rate of learning. The following flowchart depicts the student's progress through the curriculum for each major competency.

FIGURE 13. FLOWCHART OF STUDENT'S PROGRESS



CLINICAL TEACHER CONCEPT

MAJOR COMPETENCY TEST

Describe the Clinical Teacher concept. Indentify the essential elements of the model, linking the heritage and current developments in the field of special education to the future.

Cite significant special educators and their contributions to the individualization of instruction.

COMPETENCY Clinical Teacher Concept

MODULE CLUSTER Heritage, Contemporary, Future

MODULE 1 Heritage 1700-1900 (40 hours)

PURPOSE

The philosophy of individual differences, diagnostic and classification procedures, placement provisions, and instructional strategies for exceptional children will be traced from their origins, through current practices, to future forecasts.

A comprehensive study of selected examples of the medical model (1700-1900), psychological model (1900-1968), and educational model (1968-   ), provides the basis for synthesizing this knowledge into the individualized instructional curriculum. This curriculum is designed to prepare a teacher with competencies that have a common link with all three historical periods. The special educator demonstrating these skills is a Clinical Teacher.

This module enables the trainee to acquire the knowledge objectives of the historical developments of clinical teaching.

BEHAVIORAL OBJECTIVE Knowledge

Module Outcome: The Clinical Teacher Trainee (CTT) will synthesize the knowledge components of the medical model (1700-1900) including:

1. the identification of philosophical principles of individual differences,
2. elements of diagnostic and classification procedures,
3. placement provisions, and,
4. the relationship of these factors to instructional strategies.

Assessment Context: (1) Negotiated product, e.g., paper, oral presentation, multimedia product, or small-group designed, produced, and implemented role-playing seminar. (2) Essay test.

Assessment Criteria: (1) Product containing a synthesis of the four attributes specified in the outcome and its application in a case study. (2) Essay test items describing the characteristics of four attributes specified in the outcome to the satisfaction of the instructor.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Readings: Cole, L. *A history of education: Socrates to Montessori.* New York: Rinehart & Co., 1950, Chapter 20, 563-590.

Itard, Jean-Marc-Gaspard. *The wild boy of Aveyron.* New York: Appleton-Century-Crofts, 1962.

Kanner, L. *A history of the care and study of the mentally retarded.* Springfield, Ill.: Charles C. Thomas Publisher, 1964, 9-16.

Talbot, M. E. *Edouard Sequin: A study of an educational approach to the treatment of mentally defective children.* New York: Bureau of Publications, Teachers College, Columbia University, 1964.

Video Tape: History of mental retardation, part I. Interrelated Areas of Special Education, Florida State University, 1973.

Course: PCC 371 — Clinical Teacher Seminar (8 quarter hours). Individual or small group committee to plan, negotiate, and produce product.

SAMPLE TEST ITEMS

Product: (1) Plan, design, and produce a thirty-minute role-playing seminar. (2) Write a synthesis of the four attributes specified in the Module Outcome, applying the knowledge to an illustrative case study.

Essay Test: Discuss the contributions of Pereire, Itard, Sequin, and Montessori.

COMPETENCY Clinical Teacher Concept

MODULE CLUSTER Heritage, Contemporary, Future

MODULE 2 Contemporary 1900-1968 (80 hours)

PURPOSE (See Module CTC 1)

This module enables the trainee to acquire the knowledge objectives of the developments in special education during the twentieth century.

BEHAVIORIAL OBJECTIVE Knowledge

Module Outcome: The CTT will synthesize the knowledge components of the psychological model (1900-1968) including the identification of philosophical principles, elements of the diagnostic and classification procedures, placement provisions, and the relationship of these factors to instructional strategies.

Assessment Context: (1) Negotiated product, i.e., paper, oral presentation, multi-media product, small-group-designed, produced, and implemented role-playing seminar. (2) Essay test.

Assessment Criteria: (1) Product containing a synthesis of the four attributes specified in the outcome and its application in a case study. (2) Essay test items describing the characteristics of four attributes specified in the outcome to the satisfaction of the instructor.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Readings: Bateman, B. Learning disabilities—Yesterday, today, and tomorrow. *Exceptional Children*, 1964, *31*, 167-177; reprinted in E. C. Frierson and W. B. Barbe (Eds.), *Educating children with learning disabilities: Selected readings*. New York: Appleton-Century-Crofts, 1967, 10-25.

Binet, A. The education of intelligence. In *Modern ideas about children*. Paris: Ernest Flammarion, 1909, (chapter mimeographed).

Educational diagnosis, 34th yearbook of the National Society for the Study of Education. Bloomington, Ill.: Public School Publishing Co., 1935, 5-12.

Binet, A., & Simon, T. The development of intelligence in children. In J. Jenkins & D. G. Paterson (Eds.), *Studies in individual differences: The search for intelligence*. New York: Appleton-Century-Crofts, 1961, 81-111.

Kirk, S. A., & Bateman, B. Diagnosis and remediation of learning disabilities. *Exceptional children*. 1962, 29, 73-78.

Smith, R. M. *Clinical teaching: Methods of instruction for the retarded*. New York: McGraw-Hill Book Co., 1974, Chapter 2, 32-38.

Witmer, L. *The special class for backward children*. Philadelphia: The Psychological Clinic Press, 1911, Chapter 1, 1-10; Chapter 2, 11-18; Chapter 9, 262-275.

Course: PCC 371 — Clinical Teaching Seminar (8 quarter hours). Individual or small group committee to plan, negotiate, and produce product.

SAMPLE TEST ITEMS

Product: (1) Plan, design, and produce a thirty-minute role-playing seminar. (2) Write a synthesis of the four attributes specified in the module outcome, applying the knowledge to an illustrative case study.

Essay Test: Discuss the essential elements of the Bateman "schematic" comparing and contrasting the philosophies, procedures, and strategies of Witmer, Kirk, and Smith.

COMPETENCY Clinical Teacher Concept

MODULE CLUSTER Heritage, Contemporary, Future

MODULE 3 Future-Generic Approach (80 hours)

PURPOSE (See Module CTM 1)

This module enables the trainee to acquire the knowledge objectives of the performance of the Clinical Teacher in a futuristic educational environment.

BEHAVIORAL OBJECTIVE Knowledge

Module Outcome: The CTT will synthesize the knowledge components of the instructional system model (1970-) containing the identification of philosophical principles of individual differences, elements of the diagnostic and classification procedures, placement provisions, and the relationship of these factors to instructional strategies.

Assessment Context: (1) Negotiated product, i.e., paper, oral presentation, multi-media product, small-group-designed, produced, and implemented role-playing seminar. (2) Essay test.

Assessment Criteria: (1) Product containing a synthesis of the four attributes specified in the outcome and its application in a case study. (2) Essay test items describing the characteristics of four attributes specified in the outcome to the satisfaction of the instructor.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Readings: Adamson, G., & Van Etten, C. Prescribing via analysis and retrieval of instructional materials in the educational modulation center. *Exceptional Children,* 1970, *36,* 531-533.

Blackman, L. S. The dimensions of a science of special education. *Mental Retardation,* 1967, *5,* 7-11.

Deno, E. Special education as developmental capital. *Exceptional Children,* 1970, *37,* 229-237.

Deno, E. N. (Ed.) *Instructional alternatives for exceptional children.* Washington, D. C.: The Council for Exceptional Children, 1973.

Dunn, L. M. (Ed.) *Exceptional children in the schools: Special education in transition*. New York: Holt, Rinehart and Winston, 1973, Chapter 1, 3-62.

Haring, N. G. The new curriculum design in special education. *Educational Technology*, 1970, *10*, 24-31.

Lessinger, L. M. *Every kid a winner; Accountability in education*. Palo Alto, Calif.: Science Research Associates, 1970, Chapters 1-3, 1-58.

Lessinger, L. M. The powerful notion of accountability in education. *Journal of Secondary Education*, 1970, *45*, 339-347.

MacMillan, D. L. Issues and trends in social education. *Mental Retardation*, 1973, *11*, 3-8.

Schwartz, L. The myth of the "brain injured" child. *New Jersey Education Association Review*, 1963, *36*, 284-286.

Schwartz, L. Preparation of the clinical teacher for special education: 1866-1966. *Exceptional Children*, 1967, *34*, 117-124.

Schwartz, L. A clinical teacher model for interrelated areas of special education. *Exceptional Children*, 1971, *37*, 565-571.

Schwartz, L., Oseroff, A., Drucker, H., & Schwartz, R. Innovative non-categorical & interrelated projects in the education of the handicapped. Florida State University, 1972.

Course: PCC 371 — Clinical Teaching Seminar (8 quarter hours). Individual or small group committee to plan, negotiate, and produce product.

SAMPLE TEST ITEMS

Product: (1) Plan, design, and produce a thirty-minute role-playing seminar. (2) Write a synthesis of the four attributes of the module outcome, applying the knowledge to an illustrative case study.

Essay Test: Describe the generic philosophy of individual differences, the essential components of the instructional system, and identify their application in an era of educational accountability.

DIAGNOSIS

MAJOR COMPETENCY TEST

Write a Clinical Teacher Individualized Pupil Plan (based upon your diagnosis of a mildly handicapped child in a local public school resource room) containing diagnostic summaries, profile and prescription.

COMPETENCY Diagnosis

MODULE CLUSTER Desired Behavioral Sequences

MODULE 20 Pupil Objective (20 Hours)

PURPOSE

Diagnostic competencies enable the Clinical Teacher to (1) identify and specify individual pupil entry levels and learner characteristics and (2) prescribe desired objectives matched with learner characteristics and personalized instructional resources and strategies.

Awareness of the desired pupil behaviors in academic and social domains is prerequisite to an understanding of diagnosis. Knowledge of the philosophy, conceptual models, major competencies, and objectives of instruction are necessary for understanding these sequences. This module provides the CTT with an early awareness and knowledge of behavioral sequences designed for the Clinical Teacher. These continua are the basis for diagnosis and intervention.

BEHAVIORAL OBJECTIVES Early Awareness and Knowledge

Module Outcomes: (1) The CTT will have access to the Clinical Teacher behavioral sequences and be aware of additional sources of behavioral objectives. (2) The CTT will identify the essential elements of the philosophy underlying the systems approach to instruction. (3) The CTT will define needs assessment, conceptual model, major competency tests, and clustering of objectives.

Assessment Context: (1) Printed behavioral sequences and bibliography containing sources of additional objectives. (2) and (3) Project and/or essay test to be negotiated by performance contract with instructor.

Assessment Criteria: (1) Acknowledgement of receipt of materials. (2) and (3) Performance as specified in performance contract.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Readings: Clinical teacher desired pupil behaviors: An individualized reading curriculum. Interrelated Areas of Special Education, Florida State University, 1973.

Clinical teacher desired pupil behaviors: An individualized arithmetic curriculum. Interrelated Areas of Special Education, Florida State University, 1974.

Drumheller, S. J. *Handbook of curriculum design for individualizing instruction: A systems approach.* Englewood Cliffs, N.J.: Educational Technology Publications, 1971, vii-63.

Course: PCC 372 — Observation Seminar (8 quarter hours).

SAMPLE TEST ITEM

Describe the systems approach to curriculum design developed from rigorously defined behavioral objectives.

COMPETENCY Diagnosis

MODULE CLUSTER Assessing Pupil Behaviors

MODULE 21 Systematic Observation (100 hours)

PURPOSE

Systematic observation of academic and social behaviors is a vital diagnostic skill and provides the CT with data for initial and ongoing assessment. Information from observation enables the CT to select additional specific formal and informal tests.

This module provides the CTT with knowledge and skills of three observational systems, those of Lindsley, Madsen, and "precision teaching."

BEHAVIORAL OBJECTIVES Knowledge and Performance

Module outcomes: (1) The CTT will synthesize the elements of the three observational systems (Lindsley's, Madsen's, and "precision teaching") by describing in writing the terminology and procedures for pinpointing and observing behaviors and for recording the data. (2) The CTT will systematically pinpoint and observe behaviors and record data reliably, using each of the three systems.

Assessment Context: (1) Paper and essay test. (2) Observed performance and report.

Assessment Criteria: (1) Paper containing 70 percent of the terminology and procedures and a score of 80 percent on the essay test of the rationale for systematic observation. (2) Satisfaction of professor.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Readings: Drucker, H. The Lindsley observation system: A programmed resource. Interrelated Areas of Special Education, Florida State University. Mimeographed, 1971.

Madsen, C. H., Jr. & Madsen, C. K. *Teaching/discipline: Behavioral principles toward a positive approach.* Boston: Allyn and Bacon, 1970.

Peter, L. J. *Prescriptive teaching system: Individualized instruction.* New York: McGraw-Hill, 1972, 1-69.

Stephens, T. M. *Directive teaching of children with learning and behavioral handicaps.* Columbus, Ohio: Charles E. Merrill, 1970, Chapters 4-5, 61-128.

Van Dalen, D. B. *Understanding educational research: An introduction. New York:* McGraw-Hill, 1973, Chapter 3, 36-61.

Video Tapes: Using Madsen's observational system. Interrelated Areas of Special Education, Florida State University, 1972.

Madsen and Madsen observation training tape. Interrelated Areas of Special Education, Florida State University, 1971.

Multimedia: Precision teaching. Monograph, audio cassette, and film strip. Washington, D.C.: Council for Exceptional Children, 1972.

Courses: (1) PCC 372 — Observation Seminar (8 quarter hours). (2) PSY 317 — Educational Psychology (Dr. C. Madsen) (3 quarter hours).

Field Work.

SAMPLE TEST ITEMS

Paper: Write a synthesis of the three observational systems (Lindsley's, Madsen's, and "precision teaching") describing the terminology and procedures for pinpointing and observing behaviors and for recording data.

Essay Test: Discuss the rationale for systematic observation as the basis for gathering reliable data for solving scientific problems.

Performance: Visit a local classroom and pinpoint, observe, record, and report pupil behaviors.

COMPETENCY Diagnosis

MODULE CLUSTER Assessing Pupil Behaviors

MODULE 22 Familiarization with Formal and Informal Testing (120 hours)

PURPOSE

Identification of the rationale and instructional usefulness of formal and informal tests in the CT constraint battery provides the trainee with an understanding of the diagnostic procedures for determining individual pupil differences.

BEHAVIORIAL OBJECTIVE Knowledge

Module Outcome: The CTT will synthesize the rationale and educational usefulness of formal and informal tests containing definitions, descriptions, and examples.

Assessment Context: (1) Annotated resource. (2) Essay test.

Assessment Criteria: (1) Product to the satisfaction of the instructor. (2) 80 percent proficiency.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Readings: Bannatyne, A. *Language, reading and learning disabilities.* Springfield, Ill.: Charles C. Thomas, 1971, Chapter 14, 573-631.

Cohen, S. A. *Teach them all to read.* New York: Random House, 1969, Chapter 1-4, 3-76.

Course: PCC 373 — Diagnostic Seminar I (8 quarter hours).

SAMPLE TEST ITEMS

Annotated resource: Produce an annotated bibliography containing definitions, descriptions, and examples of formal and informal tests useful to the Clinical Teacher.

Essay Test: Compare and contrast the educational usefulness of formal and informal tests in clinical teaching.

COMPETENCY Diagnosis

MODULE CLUSTER Administration, Scoring, and Interpretation of Formal Tests

MODULE 23 Wechsler Intelligence Scale for Children (50 hours)

PURPOSE

Identifying and specifying individual pupil entry levels and learner characteristics is an essential skill for individualizing instruction. Administering, scoring, and interpreting selected norm referenced tests are performance skills required of the CTT.

As part of the CT constraint battery, the Wechsler Intelligence Scale for Children (WISC-R) assesses general intellectual functioning. The purpose of this module is to provide the CTT with skills in administering, scoring, and interpreting the WISC-R.

BEHAVIORAL OBJECTIVE Performance

Module Outcome: The CTT will administer, score and interpret the WISC-R.

Assessment Context: Performance with a child in public elementary school and WISC-R report.

Assessment Criteria: Observed performance and report to the satisfaction of the instructor.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Readings: WISC-R Kit, Psychological Corp., 1974.

Ferinden, W. E., & Jacobson, S. *Educational interpretation of the Wechsler intelligence scale for children* (WISC). Linden, N.J.: Remediation Associates, Inc., 1969.

Video Tape: Model demonstration of WISC-R. Interrelated Areas of Special Education, Florida State University, 1975.

Courses: (1) PCC 373 — Diagnostic Seminar I (8 quarter hours). (2) PCC 471 — Diagnostic Seminar II (8 quarter hours).

Field Work: (1) Simulated Activity: Administration of the WISC-R to peers and graduate assistant for check-out of protocol. (2) Performance with child in resource room.

SAMPLE TEST ITEM

Performance: Administer, score, interpret, and report the results of the WISC-R.

COMPETENCY Diagnosis

MODULE CLUSTER Administration, Scoring, and Interpretation of Formal Tests

MODULE 24 Illinois Test of Psycholinguistic Abilities (50 hours)

PURPOSE (See Module DIA 23)

As part of the CT constraint battery the Illinois Test of Psycholinguistic Abilities (ITPA) assesses receptive and expressive language behaviors (aptitudes). The purpose of this module is to provide the CTT with skills in administering, scoring, and interpreting the ITPA.

BEHAVIORAL OBJECTIVE Performance

Module Outcome: The CTT will administer, score and interpret the ITPA.

Assessment Context: Performance with a child in public elementary school and ITPA report.

Assessment Criteria: Observed performance and report to the satisfaction of the instructor.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Readings: Illinois test of psycholinguistic abilities kit. Urbana, Ill.: University of Illinois Press, 1968.

Ferinden, W.E., Jacobson, S., & Kovalinsky, T. *Educational interpretation of the Stanford Binet intelligence scale form LM and the Illinois test of psycholinguistic abilities.* Linden, N.J.: Remediation Association, Inc., 1970, 39-71.

Kirk, S. A., & Kirk, W. D. *Psycholinguistic learning disabilities: Diagnosis and remediation.* Urbana, Ill.: University of Illinois Press, 1971.

Kirk, W. D. *Aids and precautions in administering the Illinois test of psycholinguistic abilities.* Urbana, Ill.: University of Illinois Press, 1974.

Video Tape: Model demonstration of ITPA. Interrelated Areas of Special Education, Florida State University, 1971.

Courses: (1) PCC 373 — Diagnostic Seminar I (8 quarter hours). (2) PCC 471 — Diagnostic Seminar II (8 quarter hours).

Field Work: (1) Simulated Activity: Administration of ITPA to peers and graduate assistant for checkout of protocol. (2) Performance with child in resource room.

SAMPLE TEST ITEM

Performance: Administer, score, interpret, and report the results of the ITPA.

COMPETENCY Diagnosis

MODULE CLUSTER Administration, Scoring, and Interpretation of Formal Tests

MODULE 25 Frostig Developmental Test of Visual Perception (20 hours)

PURPOSE (See Module DIA 23)

As part of the CT constraint battery the Frostig Developmental Test of Visual Perception (DTVP) assesses visual-motor perceptual behaviors. The purpose of this module is to provide the CTT with skills in administering, scoring, and interpreting the DTVP.

BEHAVIORAL OBJECTIVE Performance

Module Outcome: The CTT will administer, score, and interpret the DTVP.

Assessment Context: Performance with a child in public elementary school and DTVP report.

Assessment Criteria: Observed performance and report to the satisfaction of the instructor.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Readings: Frostig, M. *Administration and scoring manual: Developmental test of visual perception kit.* Palo Alto, Calif.: Consulting Psychologists Press, 1966.

Frostig, M., & Horne, D. *Teacher's guide and work sheets: The Frostig program for the development of visual perception.* Chicago: Follett Publishing Company, 1973.

Video Tape: Model demonstration of DTVP. Interrelated Areas of Special Education, Florida State University, 1972.

Course: PCC 471 — Diagnostic Seminar II (8 quarter hours).

Field Work.

SAMPLE TEST ITEM

Performance: Administer, score, interpret, and report the results of the DTVP.

COMPETENCY Diagnosis

MODULE CLUSTER Administration, Scoring, and Interpretation of Formal Tests

MODULE 26 Slosson Intelligence Test and Slosson Oral Reading Test (4 hours)

PURPOSE (See Module DIA 23)

As part of the CT constraint battery the Slosson Intelligence Test (SIT) and Slosson Oral Reading Test (SORT) assess general intellectual functioning and oral vocabulary. The purpose of this module is to provide the CTT with skills in administering, scoring, and interpreting the SIT and SORT.

BEHAVIORAL OBJECTIVE Performance

Module Outcome: The CTT will administer, score, and interpret the SIT and SORT.

Assessment Context: Performance with a child in public elementary school and SIT and SORT report.

Assessment Criteria: Observed performance and report to the satisfaction of the instructor.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Readings: Slosson, R. L. *Slosson intelligence test for children and adults*. East Aurora, New York: Slosson Educational Publications, 1963.

Slosson, R. L. *Slosson oral reading test*, East Aurora, New York: Slosson Educational Publications, 1963.

Video Tape: Model demonstration of SIT and SORT. Interrelated Areas of Special Education, Florida State University, 1972.

Course: PCC 471 — Diagnostic Seminar II (8 quarter hours).

Field Work.

SAMPLE TEST ITEM

Performance: Administer, score, and report the results of the SIT and SORT.

COMPETENCY Diagnosis

MODULE CLUSTER Administration, Scoring, and Interpretation of Formal Tests

MODULE 27 The Wide Range Achievement Test (4 hours)

PURPOSE (See Module DIA 23)

As part of the CT constraint battery The Wide Range Achievement Test (WRAT) assesses pupil achievement in reading, spelling, and arithmetic. The purpose of this module is to provide the CTT with skills in administering, scoring, and interpreting the WRAT.

BEHAVIORAL OBJECTIVE Performance

Module Outcome: The CTT will administer, score, and interpret the WRAT.

Assessment Context: Performance with a child in public elementary school and WRAT report.

Assessment Criteria: Observed performance and report to the satisfaction of the instructor.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Readings: Jastak, J. F., & Jastak, S. R. *The wide range achievement test.* Wilmington, Del.: Guidance Associates, 1965. (Manual and Record Forms)

Video Tape: Model demonstration of the WRAT. Interrelated Areas of Special Education, Florida State University, 1972.

Course: PCC 471 — Diagnostic Seminar II (8 quarter hours).

Field Work.

SAMPLE TEST ITEM

Performance: Administer, score, and report the results of The Wide Range Achievement Test.

COMPETENCY Diagnosis

MODULE CLUSTER Administration, Scoring, and Interpretation of Formal Tests

MODULE 28 Gates-MacGinitie Reading Test and Gates-McKillop Reading Diagnostic Test (10 hours)

PURPOSE (See Module DIA 23)

As part of the CT constraint battery the Gates-McKillop Reading Diagnostic Test and the Gates-MacGinitie Reading Test assess reading level. The purpose of this module is to provide the CTT with skills in administering, scoring, and interpreting these tests.

BEHAVIORAL OBJECTIVE Performance

Module Outcomes: (1) The CTT will administer, score, and interpret the Gates-McKillop Reading Diagnostic Test. (2) The CTT will administer, score, and interpret the Gates-MacGinitie Reading Test.

Assessment Context: Performance with a child in public elementary school: (1) Gates-MacGinitie Reading Test, (2) Gates-McKillop Reading Diagnostic Test report

Assessment Criteria: Observed performance and report to the satisfaction of the instructor.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Readings: Gates, A. E., & McKillop, A. S. *Gates-McKillop reading diagnostic tests.* New York: Teachers College Press, 1962. (Manual of directions and pupil record booklet)

Gates, A. E., & MacGinitie, W. H. *Gates-MacGinitie reading tests.* New York: Teachers College Press, 1968. (Teachers Manual)

Video Tape: Model demonstration of Gates-MacKillop reading diagnostic tests. Interrelated Areas of Special Education, Florida State University, 1972.

Course: PCC 471 — Diagnostic Seminar II (8 quarter hours).

Field Work.

SAMPLE TEST ITEMS

Performance: (1) Administer, score, interpret, and report the results of the Gates-McKillop Reading Diagnostic Test. (2) Administer, score, interpret, and report the results of the Gates-MacGinitie Reading Test.

COMPETENCY Diagnosis

MODULE CLUSTER Administration, Scoring, and Interpretation of Formal Tests

MODULE 29 Metropolitan Readiness and Achievement Tests (4 hours)

PURPOSE (See Module DIA 23)

As part of the CT constraint battery the Metropolitan Readiness and Achievement Tests assess pupil skills (aptitudes) in reading and arithmetic. The purpose of this module is to provide the CTT with skills in administering, scoring the Metropolitan Readiness and Achievement Tests.

BEHAVIORAL OBJECTIVE Performance

Module Outcome: The CTT will administer and score the Metropolitan Readiness and Achievement Tests.

Assessment Context: Performance with a child in public elementary school and Metropolitan Readiness and Achievement Tests report.

Assessment Criteria: Observed performance and report to the satisfaction of the instructor.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Readings: Hildreth, G. H., et al. *Manual of directions: Metropolitan readiness tests.* New York: Harcourt, Brace & Jovanovich, Inc., 1970.

Video Tapes: Model demonstration of Metropolitan readiness tests. Interrelated Areas of Special Education, Florida State University, 1972.

Model demonstration of Metropolitan achievement tests. Interrelated Areas of Special Education, Florida State University, 1972.

Course: PCC 471 — Diagnostic Seminar II (8 quarter hours).

Field Work.

SAMPLE TEST ITEM

Performance: Administer, score, and report the results of the Metropolitan Achievement Tests.

COMPETENCY Diagnosis

MODULE CLUSTER Constructing, Administering, Scoring, and Interpreting Informal Tests

MODULE 30 Criterion-Referenced Tests (80 hours)

PURPOSE

Identification of the rationale and instructional usefulness of criterion-referenced tests for pre-selected behavioral objectives provides the CTT with an understanding of how to construct, administer, score, and interpret measures of knowledge, performance, and product objectives.

This module enables the CTT to (1) understand the rationale for the informal tests and (2) construct, administer, score, interpret, and report the results of criterion-referenced measurement of preselected knowledge, performance, and product objectives.

BEHAVIORAL OBJECTIVES Knowledge and Performance

Module Outcomes: (1) Attain the objectives specified in EMD 407. (2) Construct, administer, score, interpret, and report the result of criterion-referenced measurements of pre-selected knowledge, performance, and product objectives.

Assessment Context: (1) EMD 407. (2) Senior Field Work.

Assessment Criteria: (1) Passing grade of C or better. (2) Satisfaction of the instructor.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Courses: (1) EMD 407a — Making Traditional and Criterion-Referenced Tests (1 quarter hour). (2) EMD 407b — Choosing, Administering, and Interpreting Standardized Tests (1 quarter hour). (3) EMD 407c — Grading and Marking (1 quarter hour). (4) EMD 407d — Using Tests to Improve Instruction (1 quarter hour). (5) PCC 471 — Diagnostic Seminar II (8 quarter hours).

Reading: Popham, W. J. *Criterion referenced measurement.* Englewood Cliffs, N. J.: Educational Technology Pub., 1971.

Field Work.

SAMPLE TEST ITEMS

Course EMD 407: See modules for course.

Performance in field: Given pre-selected knowledge, performance, and product objectives from continuum of CT desired behavioral sequences, the CTT will construct, administer, score, interpret, and report the results from criterion-referenced test items.

COMPETENCY Diagnosis

MODULE CLUSTER Prescribing Pupil Objectives and Instructional Strategies

MODULE 31 Individualized Instructional Strategies (30 hours)

PURPOSE

Prescribing desired learner objectives, preferred learning styles, and individualized instructional strategies is prerequisite to intervention.

This module provides the CTT with an understanding of individualized instructional strategies and the specific logic employed in this Clinical Teacher Model and the use of the CT Individualized Pupil Plan.

BEHAVIORAL OBJECTIVES: Knowledge and Performance

Module Outcomes: The CTT will (1) identify and define essential elements and attributes of individualizing instruction, (2) produce a paper specifying the relationships of the elements and attributes to individualizing instruction, (3) complete the diagnostic portion of the CT Individualized Pupil Plan.

Assessment Context: (1) List of definitions. (2) essay test. (3) CT Individualized Pupil Plan.

Assessment Criteria: (1) 80% of the items contained in a pre-keyed list. (2) 80% of the critical relationships contained in a pre-keyed answer sheet. (3) satisfaction of instructor.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Readings: Duane, J. E., (Ed.) *Individualized instruction.* Englewood Cliffs, N.J.: Educational Technology Publications, 1973. (Readings to be selected based upon match of student interest through negotiation with faculty.)

Gibbons, M. *Individualized instruction.* New York: Teacher's College Press, 1971.

Hunt, D. E. *Matching models in education.* Ontario, Canada: The Ontario Institute for Studies in Education, 1971.

Course: PCC 471 — Diagnostic Seminar II (8 quarter hours).

Field Work.

SAMPLE TEST ITEMS

List and define the essential elements and attributes of the Clinical Teacher instructional logic, citing their historical and contemporary orgins.

Write an essay describing the essential elements and attributes of individualizing instruction.

Prepare and submit the diagnostic portion of the CT Individualized Pupil Plan.

COMPETENCY Diagnosis

MODULE CLUSTER Prescribing Pupil Objectives and Instructional Strategies

MODULE 32 Profile (30 hours)

PURPOSE

Prescribing desired learner objectives, preferred learning styles, and individualized instructional strategies is prerequisite to intervention.

The individual pupil profile results from a summary of the diagnostic data and knowledge of individualized instructional strategies.

This module enables the CTT to produce a profile containing pupil entry levels, desired academic and social objectives, and learner styles. This summary provides the data for matching pupil and task characteristics with individualized instructional strategies.

BEHAVIORAL OBJECTIVES Knowledge and Performance

Module Outcomes: The CTT will write an individual pupil profile containing (1) summary of diagnostic results, (2) specification of pupil entry levels and desired behavioral objectives, (3) learner and task characteristics, and (4) prescribed individualized instructional strategies.

Assessment Context: Produce a profile for a mildly handicapped child in a local school system resource room.

Assessment Criterion: Satisfaction of instructor.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Model Clinical Teacher profile and prescription form.

Course: PCC 471 — Diagnostic Seminar II (8 quarter hours).

Field Work.

SAMPLE TEST ITEM

Write individual pupil profile based upon diagnostic summary containing prescribed learner objectives, preferred learning styles, instructional resources, strategies, and environment.

INTERVENTION

MAJOR COMPETENCY TEST

Plan and write a CT Individualized Pupil Plan for a mildly handicapped child in a resource room.

Implement and describe the individualized instructional strategy employed, observe and record pupil progress and performance, and write recommendations for improving instruction.

COMPETENCY Intervention

MODULE CLUSTER Planning Individualized Instruction

MODULE 40 Selecting Instructional Resources (60 hours)

PURPOSE

Intervention competencies enable the Clinical Teacher to plan, conduct, and document the individualized instruction to produce academic and social behavioral gains in mildly handicapped children. The outcome of this module cluster is the planning and writing of the CT Individualized Pupil Plan based upon the diagnostic profile.

Instructional implications from the diagnostic profile provide the CTT with the data for planning instruction. Selecting appropriate instructional resources, which is the initial step in planning, is the outcome of this module.

BEHAVIORAL OBJECTIVES Knowledge and Performance

Module Outcomes:(1) The CTT will list three methods of teaching reading, detail essential elements and attributes and describe the learner characteristics for which they are appropriate. (2) The CTT will list two methods of teaching arithmetic, describe essential elements and attributes, and describe the learner characteristics for which they are appropriate. (3) The CTT will match appropriate instructional resources to the specific reading and arithmetic objectives from a CTT-produced diagnostic profile.

Assessment Context: (1) and (2) Chart; (3) Notes.

Assessment Criteria: (1) and (2) keyed to professional literature; (3) Instructor's judgement.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Readings: Auckerman, R. *Approaches to beginning reading.* New York: John Wiley & Sons, 1971.

Bannatyne, A. *Language reading and learning disabilities.* Springfield, Ill.: Charles C. Thomas, 1971, Chapter 15, 632-701.

Cohen, S. A. *Teach them all to read.* New York, Random House, 1969, Chapters 5-Appendix, 77-318.

Copeland, R. W. *How children learn mathematics.* New York: MacMillan Publishing Co., 1974, Chapters 1-11, 1-208.

Copeland, R. W. *Diagnostic and learning activities in mathematics for children.* New York: MacMillan Publishing Co., 1974.

Clinical Teacher desired pupil behaviors: An individualized reading and arithmetic curriculum. Interrelated Areas of Special Education, Florida State University, 1975.

Dunn, L. M., et al. *Peabody language development kits.* Levels P, I, and II. American Guidance Service.

Smith, R. M. *Clinical teaching: Methods of instruction for the retarded.* New York: McGraw-Hill, 1974, Chapters 8-9, 205-284.

Course: PCC 472 — Intervention Seminar (8 quarter hours).

SAMPLE TEST ITEMS

Chart: (1) Chart three methods of teaching reading, cross-referencing the characteristics of the methods to the types of learners for which they are appropriate. (2) Chart two methods of teaching arithmetic, cross-referencing the characteristics of the methods to all the types of learners for which they are appropriate.

Notes: Write notes matching appropriate instructional resources to the specific reading and arithmetic objectives from a CTT-produced diagnostic profile.

COMPETENCY Intervention

MODULE CLUSTER Planning Individualized Instruction

MODULE 41 Behavioral Engineering (80 hours)

PURPOSE (See Module INT 40)

Behavioral engineering is a strategy for producing desirable academic and social behaviors by matching appropriate contingencies and the learning environment to individual children. This module provides the CTT with the knowledge necessary for specifying desirable academic and social behaviors, selecting appropriate contingencies, and designing the learning environment.

BEHAVIORAL OBJECTIVE Knowledge

Module Outcomes:

1. The CTT will identify the essential elements of the learning theories which form the philosophical rationale for the strategies of behavior modification.
2. The CTT will define the following terms:
   unconditioned stimulus
   unconditioned response
   conditioned stimulus
   conditioned response
   extinction
   interval schedules
   ratio schedules
   operant level
   baseline
   time sample
   contingency
   positive reinforcement
   negative reinforcement
   time out
   punishment
   primary reinforcer
   secondary reinforcer
   continuous reinforcement
   intermittent reinforcement
   token system
   successive approximation

3. The CTT will define and describe a token system containing rules, token rewards, and activity reinforcers.
4. The CTT will describe the essential elements and attributes of Homme's Contingency Contracting System.
5. The CTT will produce: (a) an annotated bibliography of at least five research reports of the use of behavioral engineering on mildly handicapped exceptional children in local public schools, (b) a critique and synthesis of behavioral engineering techniques employment, detailing their implications for clinical teaching.
6. The CTT will specify in writing: (a) desirable social behavior, (b) appropriate contingencies, and (c) learning environment, from a CTT-produced diagnostic profile.
7. The CTT will specify in writing: (a) desirable academic behavior, (b) appropriate contingencies, and (c) learning environment from a CTT-produced diagnostic profile.

Assessment Context:

1. Essay test
2. Glossary of terms
3. Paper
4. Paper
5. (a) Annotated bibliography, (b) Paper
6. Chart
7. Chart

Assessment Criteria:

1. 80% accuracy
2. 100% accuracy
3. Keyed to trainee-selected article
4. Keyed to Homme's article
5. Instructor's judgement
6. Instructor's judgement
7. Instructor's judgement

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Readings: Buckley, N. K. & Walker, H. M. *Modifying classroom behavior*. Champaign, Ill.: Research Press, 1970.

Bugelski, B. R. *The psychology of learning applied to teaching*. New York: The Bobbs-Merrill Co., 1971.

Hewett, F. M., Taylor, R. D., & Artuso, A. A. The Santa Monica project: Evaluation of an engineered classroom design with emotionally disturbed children. *Exceptional Children*, 1969, 35, 523-529.

Homme, L. *How to use contingency contracting in the classroom.* Champaign, Ill.: Research Press, 1970.

Courses: (1) PCC 372 — Observation Seminar (8 quarter hours). (2) PSY 317 — Educational Psychology (3 quarter hours).

Field Work.

SAMPLE TEST ITEMS

Describe the elements of the learning theories of Thorndike, Skinner, Gagne, etc., relating their philosophical concepts to behavior modification techniques.

Produce a glossary of terms containing definitions of the terms specified in the outcome.

Produce a paper defining and describing a token system containing rules, token rewards, and activity reinforcers.

Produce a paper describing the essential elements and attributes of Homme's Contingency Contracting System.

Produce chart(s) as specified in the outcome(s).

COMPETENCY Intervention

MODULE CLUSTER Planning Individualized Instruction

MODULE 42 Designing the Clinical Teacher Individualized Pupil Plan (60 hours)

PURPOSE (See Module INT 40)

The completion of the CT Individualized Pupil Plan is the final product of the planning for individualized instruction. The Pupil Plan, containing (1) performance contract, (2) profile and prescription, (3) cross-referenced skill chart, (4) diagnostic summaries, and (5) intervention & evaluation summary, is the outcome of this module.

BEHAVIORAL OBJECTIVE Performance

Module Outcome: The CTT will produce four written CT Individualized Pupil Plans for reading and arithmetic behaviors.

Assessment Context: CT Individualized Pupil Plan.

Assessment Criterion: These plans are to be negotiated by the CTT to the satisfaction of the field teacher and clinical professor.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Course: PCC 472 — Intervention Seminar (8 quarter hours).

Field Work.

Model: CT Individualized Pupil Plan (See Appendix A)

SAMPLE TEST ITEM

CT Individualized Pupil Plan: Write four CT Individualized Pupil Plans for reading and arithmetic behaviors.

COMPETENCY Intervention

MODULE CLUSTER Conducting Individualized Instruction

MODULE 43 Implementing the CT Individualized Pupil Plan (80 hours)

PURPOSE (See Module INT 40)

The purpose of this module is to provide the CTT with the opportunity to demonstrate performance in conducting the individualized instruction and producing specified pupil behaviors.

BEHAVIORAL OBJECTIVES Performance and Product

Module Outcomes: (1) the CTT will perform and demonstrate the intervention competencies by conducting the individualized instructional strategies specified in the CT Individualized Pupil Plan. (2) The CTT will produce and document the four specified pupil behaviors in the pupil plans.

Assessment Context: (1) Field. (2) Documented Performance.

Assessment Criteria: (1) Observed performance of CTT using instructional resources, strategies, and environment specified in the Pupil Plans. (2) Documentation of the produced pupil behaviors.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Course: PCC 472 — Intervention Seminar (8 quarter hours).

Field Work: Learning Resources Room in Local School.

SAMPLE TEST ITEM

Performance: Conduct the instruction specified in the pupil plans and document the produced pupil behaviors.

EVALUATION

MAJOR COMPETENCY TEST

Assess pupil and curriculum performance, based upon your completed CT Individualized Pupil Plans, and write recommendations for improving instruction.

Conduct needs assessment, perform task analysis, cluster objectives, and write modules for both pupil behaviors and teacher competencies. Successfully complete individualized, personalized, and negotiated Master's program of studies.

COMPETENCY Evaluation

MODULE CLUSTER Improving Pupil Learning

MODULE 60 Assessing Pupil and Curriculum Performance (25 hours)

PURPOSE

Evaluation competencies enable the CTT to: (1) assess pupil and curriculum performance documenting the effectiveness and efficiency of instruction, (2) design additional curriculum elements, and (3) improve pupil learning and teacher instruction.

The purpose of this module is to provide the CTT with skills in assessing pupil and curriculum performance.

BEHAVIORAL OBJECTIVE Performance

Module Outcomes: (1) The CTT will calculate and write the pupil performance mastery level and compare achieved level to prestated desired mastery level. (2) The CTT will judge the acceptability of the achieved performance level and determine the implications for curriculum revisions.

Assessment Context: Report of CTT intervention and evaluation summary.

Assessment Criterion: CTT's judgement in consultation with clinical professor's judgement.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Course: PCC 474 — Evaluation of Clinical Teaching (3 quarter hours).

Clinical Teacher Individualized Pupil Plan. Interrelated Areas of Special Education, Florida State University, 1975.

SAMPLE TEST ITEM

Performance: Calculate the results of the performance contract and write a report containing your judgement of the acceptability of the performance and the implications for improving instruction.

COMPETENCY Evaluation

MODULE CLUSTER Improving Pupil Learning

MODULE 61 Designing Instructional Modules (75 hours)

PURPOSE (See Module EVA 60)

The purpose of this module is to provide the CTT with skills in the systematic design of instruction.

BEHAVIORAL OBJECTIVES Knowledge and Performance

Module Outcomes: (1) The CTT will write a needs assessment, draw a conceptual model, sequence major knowledge and performance tasks, and specify objectives. (2) The CTT will design instructional modules.

Assessment Context: (1) needs assessment, (2) task analysis, (3) conceptual model, (4) instructional modules.

Assessment Criteria: (1) and (2) keyed to resource listed and satisfaction of the clinical professor.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Readings: Drumheller, S. J. *Handbook of curriculum design for individualized instruction: A systems approach.* Englewood Cliffs, N.J.: Educational Technology Publications, 1971.

Houston, W. R., et al. *Developing instructional modules.* Houston, Texas: University of Houston, 1972.

Kapfer, P. G., & Ovard, G. F. *Preparing and using individualized learning packages for ungraded continuous program education.* Englewood Cliffs, N.J.: Educational Technology Publications, 1971.

Thiagarajan, S., Semmel, D. S., & Semmel, M. I. *Instructional development for training teachers of exceptional children: A source book.* Reston, Virginia: Council for Exceptional Children, 1974.

Walter, K. A. *Authoring individualized learning modules: A teacher training manual.* Kensington, Maryland: Project REFLECT, Montgomery County Public Schools, Report (No date).

Course: PCC 474 — Evaluation of Clinical Teaching (3 quarter hours).

SAMPLE TEST ITEM

Write a needs assessment, draw conceptual model, sequence major knowledge and performance tasks, specify objectives, and design instructional module based upon the assessment of pupil and curriculum performance.

COMPETENCY Evaluation

MODULE CLUSTER Improving Teacher Instruction

MODULE 62 Designing an Individualized Master's Program (25 hours)

PURPOSE (See Module EVA 60)

This module provides the CTT with the opportunity to improve his clinical teaching competencies by designing an individualized, negotiated Master's program of studies, to achieve the identified objectives specified in module EVA 61.

BEHAVIORAL OBJECTIVE Performance

Module Outcome: The CTT will write a Master's program of studies.

Assessment Context: Master's program of studies

Assessment Criterion: Approved Master's program of studies

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Faculty: Major Professor and other Florida State University Faculty.

Reading: Florida State University Catalog.

SAMPLE TEST ITEM

Design an individualized Master's program of studies, based upon the identified objectives specified in EVA 61.

CLINICAL TEACHING

MAJOR COMPETENCY TEST

Produce pupil gains for three or more mildly handicapped children in assigned field laboratory resource room, documenting the effectiveness and efficiency of instruction. Present four completed CT Individualized Pupil Plans. Demonstrate professional and personal skills necessary for employment in public schools.

COMPETENCY Clinical Teaching

MODULE CLUSTER Internship

MODULE 80 Producing Pupil Gains (entire academic quarter)

PURPOSE

This supervised internship provides the trainee with the culminating pre-service teacher preparation opportunity to demonstrate Clinical Teacher competencies required to produce pupil gains in mildly handicapped children (educable mentally retarded, learning disabilities, emotionally disturbed) in a learning resource room.

BEHAVIORAL OBJECTIVE Product

Module Outcomes: (1) The CTT will produce pupil gains in three or more mildly handicapped children in the areas of reading, arithmetic, and social behaviors. (2) The CTT will demonstrate the desired professional and personal skills necessary for employment in public schools.

Assessment Context:

1. A complete CT Individualized Pupil Plan must be presented as the basis for each pupil contracted for academic gains. The plan will contain (a) performance contract, (b) prescription and profile, (c) diagnostic write-ups. These plans must be approved prior to their implementation by both the cooperating teacher and the clinical professor. A suggested time-line for these plans is during the third or fourth week of the internship.
2. Four Performance Contracts (at least one in reading and one in arithmetic) are required.
3. Implementation of the above will be observed by the clinical professor towards the seventh or eighth week of internship.
4. Documentation of produced pupil gains must be presented towards the conclusion of the internship. This documentation shall include:
   a. Evaluation plan
   b. Data of pupil progress
   c. Post-test data
   d. Recommendations for improving instruction

Assessment Criteria:

1. Documentation of produced pupil gains to the satisfaction of both the cooperating teacher and university faculty is the primary basis for assessment.
2. The general guidelines for evaluation contained in Suggested Guidelines for Supervising Teachers and Program for Student Teaching, published by the Florida State University, will be employed.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Course: PCC 590 — Field Laboratory Internship (12 quarter hours). (See Appendix B)

1. The internship period is for the duration of the academic quarter and for the regular school hours, five days per week, including teacher workdays and in-service training days.
2. Supervision of the cooperating teacher and university faculty.

SAMPLE TEST ITEM

See Major Competency Test.

APPENDIX A

CLINICAL TEACHER INDIVIDUALIZED PUPIL PLAN

1. PERFORMANCE CONTRACT
2. PROFILE AND PRESCRIPTION
3. CROSS-REFERENCED SKILL CHART
4. DIAGNOSTIC SUMMARIES
5. INTERVENTION & EVALUATION SUMMARY

PERFORMANCE CONTRACT

The Florida State University
College of Education
Division of Professional and Clinical Programs
Interrelated Areas of Special Education

STUDENT: ____________________ DATE: ______________

OBJECTIVE: ______________________________________

____

____

CONTEXT: ______________________________________

____

____

CRITERIA: ______________________________________

____

DUE DATE: ____________________

TRAINEE ______________________

COOPERATING TEACHER ______________________

CLINICAL PROFESSOR ______________________

PASS ____________

FAIL ____________

COMMENTS:

Florida State University
Clinical Teacher Profile & Prescription

Name ______________________
School ______________________
Date ______________________
Clinical Teacher ______________________

Learner Entry Level and Characteristics										+	Task Characteristics					Goals & Objectives					
																1 Yr. Instructional Outcomes					Specific Skills
Chronological Age	Mental Age	Grade Equivalent	Actual Grade Placement	Total Achievement Level	Reading Level	Arithmetic Level	Psycholinguistic Age	Perceptual-Motor Quotient	Social Age	Styles & Modes: Preferences, Strengths	Reinforcers	Reading Competencies	Arithmetic Competencies	Social	Others	Total Achievement Level	Reading Level	Arith. Level	Social	Others	Reading:
12	12	7	7	7	7	7	12		12	Independ.		Comprehension	Multi.			7	7	7	12		Arithmetic:
11	11	6	6	6	6	6	11		11	Depend.		Linguistics	Div.			6	6	6	11		
10	10	5	5	5	5	5	10		10	Visual			Add.			5	5	5	10		
9	9	4	4	4	4	4	9		9	Auditory		Phonetics	Sub.			4	4	4	9		
8	8	3	3	3	3	3	8	8	8							3	3	3	8		Social:
7	7	2	2	2	2	2	7	7	7			Pre-Read	Pre-Arith.			2	2	2	7		
6	6	1	1	1	1	1	6	6	6	Group: Large Small Individ.						1	1	1	6		
5	5	K	K	K	K	K	5	5	5			Pre Academic				K	K	K	5		Others:
4	4	Pre	Pre	Pre	Pre	Pre	4	4	4							Pre	Pre	Pre	4		
3	3	Sch	Sch	Sch	Sch	Sch	3	3	3							Sch	Sch	Sch	3		

Comments:

Florida State University
Clinical Teacher Cross-Referenced Skill Chart

Name ______________________ Clinical Teacher ______________________

Date ______________________

RESOURCES OBJECTIVES															

COMMENTS:

CLINICAL TEACHER INTERVENTION & EVALUATION SUMMARY

FLORIDA STATE UNIVERSITY

I. INSTRUCTIONAL STRATEGIES EMPLOYED

II. POST-TEST DATA

III. RECOMMENDATIONS FOR IMPROVING INSTRUCTION

A. Pupil

B. Teacher

C. Curriculum

D. Others

APPENDIX B

INTERNSHIP

PCC 590: Field Laboratory Internship for Interrelated Areas of Special Education (12 quarter hours)

GOAL

This supervised internship provides the trainee with the culminating pre-service teacher preparation opportunity to demonstrate Clinical Teacher Competencies required to produce pupil gains in mildly handicapped children (educable mentally retarded, learning disabilities, emotionally disturbed) in a learning resource room.

OBJECTIVE

The outcome of this graduate internship is for the trainee to produce pupil gains in three or more mildly handicapped children in the areas of language, pre-reading, reading, arithmetic, and social behaviors.

PROCEDURES

A. Under the supervision of the cooperating teacher and university faculty, the intern will document the pupil gains produced under performance contract. The internship period is for the duration of the academic quarter and for the regular school hours, five days per week, including teacher workdays and in-service training days.

B. Performance-based competencies of diagnosis, intervention, and evaluation (demonstrated by the trainee during junior and senior level practicums in local public schools) enable the intern to (1) identify individual pupil entry levels, learner characteristics, and desired outcomes, (2) provide individualized instruction based upon a match of task, learner, and resource characteristics, and, (3) monitor pupil and curriculum performance and provide feedback for the ongoing improvement of learning and instruction.

C. 1. A complete Individualized Pupil Plan must be presented as the basis for each pupil contracted for academic gains. The Plan will contain (1) Performance Contract, (2) Prescription and Profile, (3) Diagnostic Write-Ups. These Plans must be approved prior to their implementation by (1) Cooperating Teacher, (2) Clinical Professor. A suggested time-line for these Plans is during the third or fourth week of the Internship.

2. Four Performance Contracts (at least one in reading and one in arithmetic) are required.
3. Implementation of the above will be observed by the Clinical Professor towards the seventh or eighth week of the Internship.
4. Documentation of produced pupil gains must be presented towards the conclusion of the Internship. This documentation shall include:
    1. Evaluation Plan
    2. Data of pupil progress
    3. Post-test data
    4. Recommendations for improving instruction

EVALUATION

Documentation of produced pupil gains to the satisfaction of both the cooperating teacher and university faculty is the primary basis for assessment.

In addition, the general guidelines for evaluation contained in *Suggested Guidelines for Supervising Teachers and Program for Student Teaching*, published by the Florida State University, will be employed.

CHAPTER 5

CLINICAL TEACHER DESIRED PUPIL BEHAVIORS: AN INDIVIDUALIZED READING CURRICULUM

This Individualized Reading Curriculum contains behaviorally specified and measurable reading objectives for exceptional pupils. These objectives are some of the common behaviors necessary for succeeding in the mainstream of regular education. Clinical Teacher Trainees, using this curriculum during their field practicum and internship, demonstrate their generic competencies of diagnosis and intervention. The Individualized Reading Curriculum is introduced by a philosophical overview. Conceptual and instructional models provide organizational and sequential guides. Individualized instructional modules, clustered into major competency areas, are the basic units for instruction. Cluster competency tests and suggested module test items complete the curriculum. This curriculum is a critical component of the Clinical Teacher Model. It is believed that a teacher using this curriculum will be able to individualize and personalize the reading program for exceptional children. This aspiration is historically consistent with the philosophy and provisions for meeting the individual needs of each child. According to Frederic Burk (1918):

> Individual instruction is necessarily more thoro (sic) than class instruction. Each pupil masters by himself all the work necessary to reach the grade standard as shown by thoro tests; if he is weak in any place, he is given repair exercises until he is thoro. Under an individual system, pupils vary *in the time* required to complete a unit of work, but they are practically identical in thoroness in results; under the class system the time is uniform, but they vary in *thoroness.*
>
> This new relationship between pupil and teacher is the mother of an education which has a far horizon. It means an open door to ambition, motives and all conditions favorable to education. It means freedom to the latent birthrights of each different personality. The pupil can think in his own way and at his own rate. His teacher is not his taskmaster but his friendly helper. School is not a treadmill but an exercise-ground for his ambition, his desires and his personal ingenuity.
>
> Practically all teachers would be specialists. Nor will the backward pupils be a serious menace to the success of the others. Their segregation will not even be necessary. If, for reason of their expert instruction, special teachers are desirable for them, these pupils can be handled just as are special pupils in music, art or literary expression. They will be taught to the limits of their ability; and their instruction will not be affected by the instruction of others, nor will their instruction affect others. (pp. 328-329)

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APPROACH

This reading hierarchy is a well-defined sequence of progressive, behaviorally defined objectives designed as a guideline for setting up a student's program of study (Glaser, 1968). The authors have considered the many reasons learning hierarchies are useful; however, they are inadequate by themselves for the development of curriculum materials. A matching model of instruction requires consideration of the learner's characteristics: intellectual abilities, motives, values, plans, interests, and attitudes. Thus, this reading continuum was designed to be used as a complementary approach to reading instruction and not as a method used in isolation.

Russell and Fea (1963) pointed out that there is apparently no "best" method for learning to read which applies to all children, although some methods and materials are better than others. What is needed then is a flexible curriculum with many points of entry, different methods of instruction, and options among instructional objectives. The modular format of instructional units will hopefully lend itself to such flexibility. Glaser (1972) pointed out:

> This does not imply the abandonment of sequence requirements inherent in the structure of material to be learned, but does imply that prerequisites, where essential, are to be specified in terms of capabilities of the learner rather than in terms of previous instructional experiences. A flexible curriculum avoids the necessity for all individuals to proceed through all steps in a curriculum sequence, and adapts to the fact that some individuals acquire prerequisites on their own, while others need more formal support to establish the prerequisites for advanced learning. (p. 12)

It is anticipated that new and varied instructional materials and objectives will be developed in response to the changing educational interest and requirements of both teachers and students.

The conceptual model is the basis of the order in which these modules are presented. Although no rigid hierarchy exists, certain skills are presumed to be requisite entry behaviors for use of the reading continuum. If these entry behaviors are not present, then the skills must be acquired. Included in these skills are both auditory and visual-motor perception as well as the entire range of haptic skills. These may be seen as part of the model, but are not presented as modules in the continuum.

The Clinical Teacher should be sure that each student's auditory and visual acuity have been tested, particularly if there is any reason to suspect a deficit in either area. The haptic skills are not included in this continuum because of the indirectness of their relationship to reading. However, it must not be assumed that this area of functioning may be ignored.

In using the modules of the reading continuum, the Clinical Teacher should consider the language development of each child. Many of the modules require a specific type of response, either verbal or motor. If the child is unable to make the appropriate response, an alternate type of response should be considered. The objective of the modules is the acquisition of specific skills, and these skills may be demonstrated in various ways. It is not as important that the child make exactly the type response specified, as it is that he demonstrate in some way his ability to complete the required task or demonstrate the behavior.

Important concepts which are required from the beginning of the reading continuum are those of "same" and "different." An understanding of these concepts is a prerequisite to success in the continuum. They are not taught in the continuum, but the child is required to make numerous distinctions based on these concepts. Daily lessons in the Peabody Language Development Kits, Levels P and L, may be found to be helpful if it is necessary to teach the child these concepts.

This continuum has been designed as a performance-based program. In other words, it is built on a conceptual model of information processing skills. To follow this type format, certain behaviors and skills must be identified, as in the conceptual model, and then defined.

To follow the structure of a performance-based program, the authors have defined each module's instructional intent in the PURPOSE. The behavioral objectives (competencies to be obtained) have then been stated in three parts:

1. Outcome: What the student is to do when he has mastered the skill or behavior.
2. Context: A suggested way in which the student may arrive at the intended outcome.
3. Criterion: A level of achievement at which the student is deemed competent in a behavior (mastery level).

The authors realize that the context offered to obtain any objective is often not absolute. That is why options are always included as another means or substitution for context. There are no absolute means to achieve the desired behavior, and changes may be made to fit the individual's learning characteristics or the educational environment.

As stated previously, criterion levels have been set for each objective. However, in many instances the term *Clinical Teacher judgement* may be seen. This generally means that the Clinical Teacher should consider the weight of the objective as a prerequisite to the desired mastery skills. Consideration should also be given to the reasonableness of the amount of time needed to obtain the objective. Often a student's performance on a single objective may not adequately measure the intended understanding and/or application skills which should be obtained. Therefore, it is anticipated by the authors of these modules that situations will arise in which the clinical judgement of the teacher must be the decisive factor in determining a student's level of competency.

Criterion levels are used when assessing the behavior by use of simple test items. These criterion-referenced items are written so that they measure the outcome of the prestated objective. The authors intend the user to take advantage of these items to the fullest extent by means of a pre- and post-test. The items might be used as a pre-test measure to see if a child is ready to enter a module following that sample. Then, of course, the items would be used to assess the competency level at the completion of each module.

A major competency test has also been designed for the Clinical Teacher's utilization. The competency test covers a module cluster. It is used to help in diagnosis. By using a cluster item, the Clinical Teacher may sample behavior to help locate the level on the continuum at which the child may need to enter. This enables an accurate assessment without having to sample each module. On the other hand, the Clinical Teacher may use this instrument in reverse, to check whether the competencies and/or behaviors have been achieved.

Properly used, this program can help you implement many areas of your own program, and help you design remedial strategies to achieve the instructional gains you, as a clinician, deem necessary.

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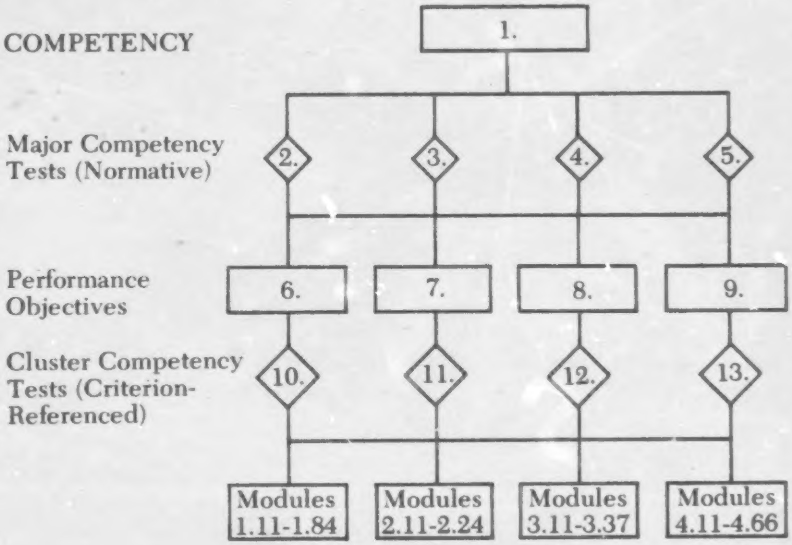
Burk, F. Individual instruction vs. the lockstep system. *The American City*, 1918, *28*, 328-329.

Glaser, R. Adapting the elementary school curriculum to individual performance. In *Proceedings of the 1967 Invitational Conference on Testing Problems*. Princeton: Educational Testing Service, 1968.

Glaser, R. Individuals and learning: The new aptitudes. *Educational Researcher*, 1972, *1*, 12.

Russell, D. H. & Fea, H. R. Research on teaching reading. In N. L. Gage (Ed.), *Handbook of research on teaching*. Chicago: Rand McNally, 1963.

FIGURE 14.
CONCEPTUAL MODEL FOR READING COMPETENCIES


COMPETENCY
1.
Major Competency Tests (Normative)
2.
3.
4.
5.
Performance Objectives
6.
7.
8.
9.
Cluster Competency Tests (Criterion-Referenced)
10.
11.
12.
13.
Modules 1.11-1.84
Modules 2.11-2.24
Modules 3.11-3.37
Modules 4.11-4.66

COMPETENCY

1. The competency of reading is the integration of the four major skills (pre-reading, reading-phonetics, reading-linguistics, and reading-comprehension) enabling the exceptional child to achieve at various levels. Reading achievement is measured by the amount of comprehension, and the content of different difficulty levels attained within the constraints of specified time limits.

MAJOR COMPETENCY TESTS (Normative)

2., 3., 4., & 5. The major competency tests in pre-reading, reading-phonetics, reading-linguistics, and reading-comprehension may be chosen by the Clinical Teacher from the wide array of standardized, norm-referenced tests.

PERFORMANCE OBJECTIVES

6. Pre-reading competency is the achievement of auditory, visual, and haptic skills believed to be pre-requisite for reading behaviors.
7. Reading-phonetics competence is the achievement of skills in identifying and verbalizing the phonetic sounds, letters and letter combinations believed to be interconnected with the achievement of other reading behaviors.
8. Reading-linguistics competency is the achievement of skills in identification and rule application, of word forms, parts of speech and sentences believed to be interconnected with the achievement of other reading behaviors.
9. Reading-comprehension competency is the achievement of skills in syntax, word meaning, sentence meaning, phrase meaning, and paragraph meaning believed to be interconnected with the achievement of other reading behaviors.

CLUSTER COMPETENCY TESTS (Criterion-Referenced)

10. The cluster competency tests in pre-reading are criterion-referenced measures of achievement in letter knowledge, and in discrimination, memory, sequential memory, and comprehension in both the auditory and visual channels. (Auditory and visual-motor perception, and the entire range of haptic skills, are considered to be prerequisite to this reading continuum.) These tests include Modules 1.11-1.84.
11. The cluster competency tests in reading-phonetics are criterion-referenced measures of achievement in consonants and vowels. These tests include Modules 2.11-2.24.
12. The cluster competency tests in reading-linguistics are criterion-referenced measures of achievement in word form, sentences, and parts of speech. These tests include Modules 3.11-3.37.
13. The cluster competency tests in reading-comprehension are criterion-referenced measures of achievement in word meaning, phrase meaning, syntax, sentence meaning, and paragraph meaning. These tests include Modules 4.11-4.66.

1.0 COMPETENCY Pre-Reading

1.1 MODULE CLUSTER Auditory Discrimination

1.11 MODULE Sound Discrimination

PURPOSE To provide the student with the skills for discriminating sounds.

BEHAVIORAL OBJECTIVES

Outcome: The student will discriminate between different sounds by raising his hand appropriately.

Context: A series of ten pairs of sounds, five of which are identical and five of which are not.

Criterion: 100% accuracy.

Outcome: The student will discriminate between similar sounds by raising his hand appropriately.

Context: A series of fifteen pairs of sounds, six of which are identical, three of which vary in intensity, three of which vary only in duration, and three of which vary only in pitch.

Criterion: 100% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Smith. *Clinical teaching.* pp. 149-50.

Peabody Language Development Kit, Level No. P
6-3 & 4; 3-3; 11-2; 30-2; 25-3; 37-3, 47-4; 48-3; 57-1; 60-1 & 3; 67-1; 69-2; 71-2; 90-4; 103-3; 107-2 & 3; 112-1 & 2; 116-3; 128-2, 3, & 4; 129-3; 131-1 & 3; 132-1 & 2; 133-4; 137-1; 138-4; 141-4; 144-3; 145-2; 150-2; 152-1; 153-3 & 4; 155-3; 156-3; 157-3; 159-3; 160-4; 161-2 & 4; 162-4; 163-4; 167-1 & 4; 169-3; 170-3; 171-1; 178-3; 179-1.

Peabody Language Development Kit, Level No. 1
56-3; 100-2.

SAMPLE TEST ITEMS

Given a series of ten pairs of sounds, five of which are identical and five of which are not, the student will raise his hand when the sounds are different.

Given a series of fifteen pairs of sounds, six of which are identical, three of which vary only in intensity, three of which vary only in duration, and three of which vary only in pitch, the student will raise his hand when the sounds are different.

1.0 COMPETENCY Pre-Reading

1.1 MODULE CLUSTER Auditory Discrimination

1.12 MODULE Rhyming

PURPOSE To provide the student with the skills for rhyming.

BEHAVIORAL OBJECTIVES

Outcome: The student will raise his hand when a pair of words rhymes.

Context: A list of ten pairs of words presented orally, five of which rhyme and five of which do not.

Criterion: Clinical Teacher judgement.

Outcome: The student will name a word which rhymes with a given word.

Context: A list of ten one-syllable words presented orally.

Criterion: Clinical Teacher judgement.

Outcome: The student will name a pair of words that rhyme.

Context: Not significant.

Criterion: Clinical Teacher judgement.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

See Appendix.

Smith. *Clinical teaching.* pp. 150-151.

Peabody Language Development Kit, Level No. P
33-1; 36-2; 39-4; 40-4; 46-4; 48-4; 49-3; 64-3; 77-4; 105-3; 109-3; 120-3; 130-2; 133-3; 137-3; 149-3; 154-2; 158-3; 171-3.

Peabody Language Development Kit, Level No. 1
9-1; 13-3; 16-2; 18-2; 24-2; 31-1; 37-1; 44-3; 48-2; 49-1; 57-2; 70-1; 74-3; 79-1, 2; 93-1; 96-2; 98-3; 104-2; 106-3; 109-1; 116-2; 118-3; 122-1; 127-1; 142-3; 145-2; 153-2; 158-2; 160-3; 161-1; 169-1.

SAMPLE TEST ITEMS

Given a list of ten pairs of one-syllable words, five of which rhyme and five of which do not, the student will raise his hand when a pair of words rhymes.

Given a list of ten one-syllable words presented orally, the student will name a word which rhymes with each given word.
The student will name a pair of words that rhyme.

1.0 COMPETENCY Pre-Reading

1.1 MODULE CLUSTER Auditory Discrimination

1.13 MODULE Single Consonant Discrimination

PURPOSE To provide the student with the skills for discriminating single consonants.

BEHAVIORAL OBJECTIVE

Outcome: The student will discriminate between single consonant sounds by responding verbally.

Context: Twenty pairs of consonants presented orally, ten of which are the same and ten of which are not.

Criterion: 100% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Language Master Cards, each card containing two consonant sounds, a pause for student response as to whether the sounds are the same or different, and teacher confirmation.

Cassette tapes, used in a similar manner.

SAMPLE TEST ITEMS

Given a series of twenty pairs of consonants presented orally, ten of which are the same and ten of which are not, the student will indicate whether the consonant sounds are the same or different by responding verbally.

1.0 COMPETENCY Pre-Reading

1.1 MODULE CLUSTER Auditory Discrimination

1.14 MODULE Initial Consonant Discrimination

PURPOSE To provide the student with the skills for discriminating initial consonants.

BEHAVIORAL OBJECTIVE

Outcome: The student will discriminate between initial consonant sounds by responding verbally.

Context: Twenty pairs of words presented orally, ten of which pairs begin with the same initial consonant and ten of which do not.

Criterion: 100% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Wepman. Auditory Discrimination Test (initial consonants).

Perc. Auditory Discrimination Test (initial consonants).

Durrell. *Improving reading instruction.*

Durrell, Sullivan & Murphy. *Building word power.*

Lyons & Carnahan. *Phonics we use.*

Durrell-Murphy. *Speech to print phonics.*

Peabody Articulation Cards.

Peabody Language Development Kit, Level No. P.
72-3; 92-3; 116-2; 127-4; 129-2; 145-2; 167-2; 174-2; 179-4.

Language Master Cards, each card containing two words beginning with consonants, a pause for the student to respond whether the initial consonants are the same or different, and teacher confirmation.

The following commercially prepared materials may also be found to be suitable resources:
Show You Know-Then Go! — Teaching Resources.
Game Transparencies — Discovery Phonics.
Listening Tapes-Initial Consonants — Ideal.
Consonant Lotto — Dolch.
Auditory Discrimination in Depth — Teaching Resources.

SAMPLE TEST ITEM

Given a list of twenty pairs of words presented orally, ten of which pairs begin with the same initial consonant and ten of which do not, the student will indicate whether the initial consonant sounds are the same or different by responding verbally.

1.0 COMPETENCY Pre-Reading

1.1 MODULE CLUSTER Auditory Discrimination

1.15 MODULE Final Consonant Discrimination

PURPOSE To provide the student with the skills for discriminating final consonants.

BEHAVIORAL OBJECTIVE

Outcome: The student will discriminate between final consonant sounds by responding verbally.

Context: Twenty pairs of words presented orally, ten of which pairs have the same final consonant and ten of which do not.

Criterion: 100% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Wepman. Auditory Discrimination Test (final consonants).

Perc. Auditory Discrimination Test (final consonants).

Durrell. *Improving reading instruction.*

Durrell, Sullivan, Murphy. *Building word power.*

Lyons & Carnahan. *Phonics we use.*

Peabody Articulation Cards.

Language Master Cards, each card containing two words ending in consonants, a pause for the student to respond whether the final consonants are the same or different, and teacher confirmation.

The following commercially-prepared materials may also be found to be suitable resources:
Final Consonant Transparencies — Ideal.
Listening Tapes-Final Consonants — Ideal.

SAMPLE TEST ITEM

Given a list of twenty pairs of words presented orally, ten of which pairs have the same final consonant and ten of which do not, the student will indicate whether the final consonants are the same or different by responding verbally.

1.0 COMPETENCY Pre-Reading

1.1 MODULE CLUSTER Auditory Discrimination

1.16 MODULE Single Vowel Discrimination

PURPOSE To provide the student with the skills for single vowel discrimination.

BEHAVIORAL OBJECTIVE

Outcome: The student will discriminate between single vowel sounds by responding verbally.

Context: Ten pairs of vowels presented orally, ten of which are the same and ten of which are not.

Criterion: 100% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Language Master Cards, each card containing two vowel sounds, a pause for student response as to whether the sounds are the same or different, and teacher confirmation.

Cassette tapes, used in a similar manner.

SAMPLE TEST ITEM

Given ten pairs of vowels presented orally, ten of which are the same and ten of which are not, the student will indicate whether the vowel sounds are the same or different by responding verbally.

1.0 COMPETENCY Pre-Reading

1.1 MODULE CLUSTER Auditory Discrimination

1.17 MODULE Medial Vowel Discrimination

PURPOSE To provide the student with the skills for discriminating medial vowels.

BEHAVIORAL OBJECTIVE

Outcome: The student will discriminate between medial vowel sounds by responding verbally.

Context: Ten pairs of words presented orally, ten of which have the same medial vowel sounds and ten of which do not.

Criterion: 100% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

See Appendix for examples.

Wepman. Auditory Discrimination Test (medial).

Perc. Auditory Discrimination Test (medial vowels).

Language Master Cards, each card containing two one-syllable words with a medial vowel, a pause for student response as to whether the medial vowels are the same or different, and teacher confirmation.

Cassette tapes, similar in usage to Language Master Cards.

Durrell, Sullivan & Murphy. *Building word power.*

Lyons & Carnahan. *Phonics we use.*

The following commercially-prepared materials may also be found to be suitable resources:
Listening Tapes-Vowel Discrimination — Ideal.
Vowel Lotto — Dolch.

SAMPLE TEST ITEM

Given a list of ten pairs of words presented orally, ten of which have the same medial vowel sounds and ten of which do not, the student will indicate whether the medial vowel sounds are the same or different by responding verbally.

1.0 COMPETENCY Pre-Reading

1.1 MODULE CLUSTER Auditory Discrimination

1.18 MODULE Discrimination of Single Consonant Blends

PURPOSE To provide the student with the skills for discriminating single consonant blends.

BEHAVIORAL OBJECTIVE

Outcome: The student will discriminate between the sounds of single consonant blends by responding verbally.

Context: Twenty pairs of consonant blends presented orally, ten of which pairs are the same and ten of which are not.

Criterion: 100% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

See Appendix.

Language Master Cards, each card containing two consonant blends, a pause for the student to respond whether the blends sound the same or different, and teacher confirmation.

Cassette tapes, similar in usage to Language Master Cards.

SAMPLE TEST ITEM

Given a series of twenty pairs of consonant blends presented orally, ten of which are the same and ten of which are not, the student will indicate whether the sounds of the consonant blends are the same or different by responding verbally.

1.0 COMPETENCY Pre-Reading

1.1 MODULE CLUSTER Auditory Discrimination

1.19 MODULE Discrimination of Initial Consonant Blends

PURPOSE To provide the student with the skills for discriminating initial consonant blends.

BEHAVIORAL OBJECTIVE

Outcome: The student will discriminate between initial consonant blends by responding verbally.

Context: Twenty pairs of words presented orally, ten of which pairs have the same initial consonant blend and ten of which do not.

Criterion: 100% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

See Appendix.

Durrell-Murphy. *Speech to print phonics.*

Lyons & Carnahan. *Phonics we use.*

Language Master Cards, each card containing two words with initial consonant blends, a pause for the student to respond whether the initial consonant blends are the same or different, and teacher confirmation.

Cassette tapes, similar in usage to the Language Master Cards.

Peabody Articulation Cards.

Peabody Language Development Kit, Level No. P
167-2.

The following commercially prepared materials may also be found to be suitable resources:
Listening Tapes — Ideal.
Consonant Blend Playing Cards — McGraw-Hill.
Phonics Game — Lyons & Carnahan.

SAMPLE TEST ITEM

Given a list of twenty pairs of words presented orally, ten of which pairs have the same initial consonant blends and ten of which do not, the student will indicate whether the sounds of the initial consonant blends are the same or different by responding verbally.

1.0 COMPETENCY Pre-Reading

1.1 MODULE CLUSTER Auditory Discrimination

1.191 MODULE Discrimination of Final Consonant Blends

PURPOSE To provide the student with the skills for discriminating final consonant blends.

BEHAVIORAL OBJECTIVE

Outcome: The student will discriminate between final consonant blends by responding verbally.

Context: Twenty pairs of words presented orally, ten of which have the same final consonant blends and ten of which do not.

Criterion: 100% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

See Appendix.

Durrell-Murphy. *Speech to print phonics.*

Language Master Cards, each card containing two one-syllable words with a final consonant blend, a pause for student response as to whether the final consonant blends are the same or different, and teacher confirmation.

Cassette tapes, similar in usage to Language Master Cards.

Lyons & Carnahan. *Phonics we use.*

The following commercially prepared materials may also be found to be suitable resources:
Listening Tapes — Ideal.
Consonant Blends Playing Cards — McGraw-Hill.
Phonics Game — Lyons & Carnahan.

SAMPLE TEST ITEM

Given a list of twenty pairs of words presented orally, ten of which have the same final consonant blends and ten of which do not, the student will indicate whether the sounds of the final consonant blends are the same or different by responding verbally.

1.0 COMPETENCY Pre-Reading

1.2 MODULE CLUSTER Auditory Memory

1.21 MODULE Auditory Memory of Sounds

PURPOSE To provide the student with the skills for auditory memory of sounds.

BEHAVIORAL OBJECTIVES

Outcome: The student will recall verbally or physically reproduce in any sequence a series of sounds previously heard.

Context: Three different series of four sounds, presented to the student when blindfolded or out of his line of vision.

Criterion: 100% accuracy.

Outcome: The student will recall verbally or physically reproduce in any sequence a series of sounds previously heard.

Context: Three different series of four sounds, presented to the student when blindfolded or out of his line of vision; a pause of five seconds following the aforementioned context; followed by the reading of a distracting sentence from an unfamiliar story; followed again by a five-second pause.

Criterion: Clinical Teacher judgement.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Language Master Cards, each card containing two or three sounds and a pause for the student to name the sounds which he heard.

Cassette tapes, similar in usage to the Language Master Cards. In using the tapes, the teacher might make the series of sounds longer, and include teacher feedback.

Peabody Language Development Kit, Level No. P.
3-3; 11-3; 16-3; 27-3; 30-3; 77-3; 112-1 & 2; 141-1; & 4; 171-1.

The following commercially prepared materials may also be found to be suitable resources:
Perception of Sound — Teaching Resources.

SAMPLE TEST ITEMS

Given three different series of four sounds (example: clap hands, tap desk, tap a pencil, ring a bell), presented to the student when blindfolded or out of his line of vision, the student will recall verbally or reproduce physically the sounds.

Given three different series of four sounds presented to the student when blindfolded or out of his line of vision; a pause of five seconds following the aforementioned context; followed by the reading of a distracting sentence from an unfamiliar story; followed again by a five-second pause; the student will recall verbally or reproduce physically the sounds heard.

1.0 COMPETENCY Pre-Reading

1.2 MODULE CLUSTER Auditory Memory

1.22 MODULE Auditory Memory of Words

PURPOSE To provide the student with the skills for auditory memory of words.

BEHAVIORAL OBJECTIVES

Outcome: The student will verbally recall, in any sequence, a series of words.

Context: Three series of four familiar words, establishing set, spoken at the rate of one per second.

Criterion: 100% accuracy.

Outcome: The student will verbally recall, in any sequence, a series of words.

Context: Three series of four familiar words, not establishing set, spoken at the rate of one per second.

Criterion: 100% accuracy.

Outcome: The student will verbally recall, in any sequence, a series of words.

Context: Three series of two unfamiliar words, spoken at the rate of one per second.

Criterion: 100% accuracy.

Outcome: The student will verbally recall, in any sequence, a series of words.

Context: Three series of four familiar words, establishing set, spoken at the rate of one per second; a pause of five seconds following the aforementioned context; followed by the reading of a distracting sentence from an unfamiliar story; followed again by a five-second pause.

Criterion: Clinical Teacher judgement.

Outcome: The student will verbally recall, in any sequence, a series of words.

Context: Three series of four familiar words, not establishing set, spoken at the rate of one per second; a pause of five seconds following the aforementioned context; followed by the reading of a distracting sentence from an unfamiliar story; followed again by a five-second pause.

Criterion: Clinical Teacher judgement.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Dolch Words — 95 basic nouns.

Dolch picture word cards.

Language Master Cards, each card containing two or three words followed by a pause for the student to name the words which he heard.

Cassette tapes, similar in usage to the Language Master Cards. In using the tapes, the teacher might make the series of words longer, and provide teacher feedback.

Peabody Language Development Kit, Level No. P.
40-3; 41-1; 44-1 & 4; 57-3; 72-1; 89-1; 91-1; 97-3; 100-1 & 2; 104-1; 120-1; 123-1; 124-3; 138-1 & 2; 144-1 & 2; 148-1 & 2; 160-1; 180-1.

SAMPLE TEST ITEMS

Given three series of four familiar words, establishing set, spoken at the rate of one word per second, the student will name (not necessarily in sequence) the words previously heard.

Given three series of four familiar words, not establishing set, spoken at the rate of one word per second, the student will name (not necessarily in sequence) the words previously heard.

Given three series of two unfamiliar words, spoken at the rate of one word per second, the student will name (not necessarily in sequence) the words previously heard.

Given three series of four familiar words, establishing set, spoken at the rate of one word per second; a pause of five seconds following the aforementioned context; followed by the reading of a distracting sentence from an unfamiliar story; followed again by a five-second pause; the student will name (not necessarily in sequence) the words previously heard.

Given three series of four familiar words, not establishing set, spoken at the rate of one word per second; a pause of five seconds following the aforementioned context; followed by the reading of a distracting sentence from an unfamiliar story; followed again by a five-second pause; the student will name (not necessarily in sequence) the words previously heard.

1.0 COMPETENCY Pre-Reading

1.2 MODULE CLUSTER Auditory Memory

1.23 MODULE Auditory Memory of Numbers

PURPOSE To provide the student with the skills for auditory memory of numbers.

BEHAVIORAL OBJECTIVES

Outcome: The student will recall verbally, in any sequence, a series of numbers previously heard.

Context: Three series of four random numbers spoken at the rate of one per second.

Criterion: 100% accuracy.

Outcome: The student will recall verbally, in any sequence, a series of numbers previously heard.

Context: Three series of four random numbers spoken at the rate of one per second; a pause of five seconds following the aforementioned context; followed by the reading of a distracting sentence from an unfamiliar story; followed again by a five-second pause.

Criterion: Clinical Teacher judgement.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Language Master Cards, each card containing two or three numbers, followed by a pause for the student to name the numbers which he heard.

Cassette tapes, similar in usage to the Language Master Cards. In using the tapes, the teacher might make the series of numbers longer, and include teacher feedback.

Peabody Language Development Kit, Level No. P.
46-3.

SAMPLE TEST ITEMS

Given three series of four random numbers, spoken at the rate of one per second, the student will name (not necessarily in sequence) the numbers previously heard.

Given three series of four random numbers spoken at the rate of one per second; a pause of five seconds following the aforementioned context; followed by the reading of a distracting sentence from an unfamiliar story; followed again by a five-second pause, the student will name (not necessarily in sequence) the numbers previously heard.

1.0 COMPETENCY Pre-Reading

1.2 MODULE CLUSTER Auditory Memory

1.24 MODULE Auditory Memory of Letters

PURPOSE To provide the student with the skills for auditory memory.

BEHAVIORAL OBJECTIVES

Outcome: The student will verbally recall, in any sequence, random letters previously heard.

Context: Three series of four random letters, spoken at the rate of one per second.

Criterion: 100% accuracy.

Outcome: The student will verbally recall, in any sequence, random letters previously heard.

Context: Three series of four random letters, spoken at the rate of one per second; a pause of five seconds following the aforementioned context; followed by the reading of a distracting sentence from an unfamiliar story; followed again by a five-second pause.

Criterion: Clinical Teacher judgement.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Language Master Cards, each card containing two or three letters, followed by a pause for the student to name the letters which he heard.

Cassette tapes, similar in usage to the Language Master Cards. In using the tapes, the teacher might make the series of letters longer, and include teacher feedback.

SAMPLE TEST ITEMS

Given three series of four random letters, spoken at the rate of one per second, the student will name (not necessarily in sequence) the letters previously heard.

Given three series of four random letters, spoken at the rate of one per second; a pause for five seconds following the aforementioned context; followed by the reading of a distracting sentence from an unfamiliar story; followed again by a five-second pause, the student will name (not necessarily in sequence) the letter previously heard.

1.0 COMPETENCY Pre-Reading

1.3 MODULE CLUSTER Auditory Sequential Memory

1.31 MODULE Auditory Sequential Memory of Sounds

PURPOSE To provide the student with the skills for auditory sequential memory of sounds.

BEHAVIORAL OBJECTIVE

Outcome: The student will recall verbally or reproduce physically in sequence a series of sounds.

Context: Three series of four sounds, presented to the student when blindfolded or out of his line of vision.

Criterion: 100% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Language Master Cards, each card containing three sounds, followed by a pause for the student to name the sounds which he heard.

Cassette tapes, similar in usage to the Language Master Cards. In using the tapes, the teacher might make the series of sounds longer, and include teacher feedback.

Peabody Language Development Kit, Level No. P.
43-3; 98-4; 117-4; 133-4; 138-4; 162-4.

Peabody Language Development Kit, Level No. 1.
4-3; 7-3; 44-3; 65-3; 80-3; 97-3; 110-2; 115-2; 140-3; 162-3.

The following commercially prepared materials might also be found to be suitable resources:
Memory-Auditory and Visual — Teaching Resources Filmstrips.
Sequence Tapes — Ideal.

SAMPLE TEST ITEM

Given three series of four sounds (example: clap hands, tap desk, tap a pencil, ring a bell), presented to the student when blindfolded or out of his line of vision, the student will recall verbally or reproduce physically the sounds in sequence.

1.0 COMPETENCY Pre-Reading

1.3 MODULE CLUSTER Auditory Sequential Memory

1.32 MODULE Auditory Sequential Memory of Words

PURPOSE To provide the student with skills for auditory sequential memory of words.

BEHAVIORAL OBJECTIVES

Outcome: The student will recall verbally, in the order presented, a sentence.

Context: Three four-word sentences, spoken at the rate of one word per second.

Criterion: 100% accuracy.

Outcome: The student will recall verbally, in the order presented, a sentence.

Context: Three nine-word sentences, spoken at the rate of one word per second.

Criterion: 100% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Ferinden. *Educational interpretation of the ITPA.* This booklet contains specific exercises which may be used to increase auditory sequential memory.

Any common nursery rhymes may be used. For instance, the teacher might prepare a cassette tape with several nursery rhymes, and pause for student response.

Peabody Language Development Kit Level No. P.
8-4; 9-1; 30-1; 73-2; 103-2.

Peabody Language Development Kit, Level No. 1.
9-1; 13-3; 16-2; 18-2; 19-4; 24-2; 31-1; 37-1; 44-3; 45-2; 46-3; 48-2; 49-1; 57-2; 60-2; 70-1; 74-3; 79-1; 82-3; 85-3; 86-3; 93-1; 96-2; 102-1; 103-1; 104-1; 106-3; 107-2; 109-1; 116-2; 122-1; 127-1; 132-3; 152-1; 154-1; 157-2; 161-1.

The following commercially prepared materials may also be found to be suitable resources:
Memory-Auditory and Visual — Teaching Resources Filmstrips.
Sequence Tapes — Ideal.

SAMPLE TEST ITEMS

Given three four-word sentences, spoken at the rate of one word per second, the student will repeat the sentences.

Given three nine-word sentences, spoken at the rate of one word per second, the student will repeat the sentences.

1.0 COMPETENCY Pre-Reading

1.3 MODULE CLUSTER Auditory Sequential Memory

1.33 MODULE Auditory Sequential Memory of Numbers

PURPOSE To provide the student with the skills for auditory sequential memory of numbers.

BEHAVIORAL OBJECTIVE

Outcome: The student will recall verbally, in sequence, a series of numbers.

Context: Three series of four random numbers spoken at the rate of one per second.

Criterion: 100% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Ferinden. *Educational interpretation of the ITPA.* This booklet contains specific exercises which may be used to improve auditory sequential memory.

Peabody Language Development Kit, Level No. P.
81-2.

Peabody Language Development Kit, Level No. 1.
97-3; 104-1; 157-3; 158-3.

The following commercially prepared materials may also be found to be suitable resources:
Memory-Auditory and Visual — Teaching Resources Filmstrips.
Sequence Tapes — Ideal.
Sesame Street Number Records — Columbia Book and Record Library.

SAMPLE TEST ITEM

Given three series of four random numbers, spoken at the rate of one per second, the student will name the numbers in sequence.

1.0 COMPETENCY Pre-Reading

1.3 MODULE CLUSTER Auditory Sequential Memory

1.34 MODULE Auditory Sequential Memory of Letters

PURPOSE To provide the student with the skills for auditory sequential memory of letters.

BEHAVIORAL OBJECTIVE

Outcome: The student will recall verbally, in sequence, a series of letters.

Context: Three series of four random letters, spoken at the rate of one per second.

Criterion: 100% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Cassette tapes. For instance, the teacher might make a tape including a series of letters, a pause for student response, and teacher feedback.

The following commercially prepared materials may also be found to be suitable resources:
Memory-Auditory and Visual — Teaching Resources Filmstrips.
Sequence Tapes — Ideal.
Sesame Street Letter Records — Columbia Book and Record Library.

SAMPLE TEST ITEM

Given three pairs of four random letters, spoken at the rate of one per second, the student will name the letters in sequence.

1.0 COMPETENCY Pre-Reading

1.4 MODULE CLUSTER Auditory Comprehension

1.41 MODULE Auditory Comprehension — Literal

PURPOSE To provide the student with the skills for the literal auditory comprehension.

BEHAVIORAL OBJECTIVES

Outcome: The student will perform a series of actions in sequence.

Context: Three series of three directions, presented orally.

Criterion: 100% accuracy.

Outcome: The student will verbally recall five details of a story.

Context: A story presented orally.

Criterion: 100% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

General, fairy tales and children's stories. These are available as books, records and/or tapes.

Peabody Language Development Kit, Level No. P.
Literal (Main idea, to be able to follow directions in a sequence, etc.)
10-4; 26-3; 27-1; 30-1; 33-4; 35-1 & 2; 47-3; 49-3; 51-1; 66-1 & 3; 69-1; 70-3; 78-1; 84-3; 87-2; 88-3; 93-2; 94-2; 100-1; 102-1; 104-3; 110-4; 113-3; 119-3; 121-4; 124-3; 125-1 & 2; 131-1; 134-1; 136-2; 141-1; 144-1; 148-1; 156-4.

Following Verbal Directions:
5-4; 8-2; 9-4; 10-4; 12-1; 13-3; 15-3; 16-1; 20-3; 21-4; 26-4; 27-2 & 4; 32-2 & 4; 37-4; 38-1 & 4; 39-2 & 4; 42-4; 46-2; 47-3; 48-3; 50-2 & 4; 51-2; 53-4; 57-2; 58-2 & 3; 61-3; 63-4; 65-2; 67-2; 68-4; 71-3; 73-3; 75-4; 77-2; 82-3 & 4; 85-4; 87-4; 89-3; 92-2; 94-4; 96-2; 98-1; 100-4; 102-2 & 4; 103-1; 104-2; 105-2 & 4; 108-2; 109-4; 112-4; 113-4; 114-2; 117-2; 118-2; 119-1; 120-2; 122-4; 123-2; 126-2, 3, & 4; 130-2; 131-2; 134-2; 139-4; 140-2 & 3; 141-2; 145-4; 146-4; 147-2 & 4; 150-4; 155-4; 159-4; 165-2; 169-4; 170-4; 174-3; 176-1 & 3; 177-4; 178-1.

Peabody Language Development Kit, Level No. 1. Activities titled "Following Directions Time."

The following commercially prepared materials may also be found to be suitable resources:
Listening Comprehension Level 1B — SRA.
Following Directions in Sequence — Milliken.
Memory-Auditory and Visual — Teaching Resources Filmstrip.

SAMPLE TEST ITEMS

Given three series of three directions, presented orally, the student will perform the required actions in sequence.

Given a story presented orally, the student will verbally recall five details of the story.

1.0 COMPETENCY Pre-Reading

1.5 MODULE CLUSTER Visual Discrimination

1.51 MODULE Shape Discrimination

PURPOSE To provide the student with the skills for discriminating shapes.

BEHAVIORAL OBJECTIVES

Outcome: The student will discriminate between three-dimensional geometric shapes by picking up the appropriate object(s).

Context: Four sets of four three-dimensional geometric shapes, (circle, square, triangle, diamond), each set containing three shapes which are the same and one which is different.

Criterion: 100% accuracy.

Outcome: The student will discriminate between two-dimensional geometric shapes by pointing to the appropriate shape(s).

Context: Four sets of four two-dimensional geometric shapes, (circle, square, triangle, diamond), each set containing three shapes which are the same and one which is different.

Criterion: 100% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Montessori Form Board.

Frostig Program for Visual Perception.

Continental Press Worksheets.

Two-dimensional and three-dimensional circles, squares, triangles, and diamonds.

The following commercially prepared materials may also be found to be suitable resources:
Color, Size, Shape Basic Visual Perception — Teaching Resources.
Form Fitter Box — Creative Playthings.
Geometric Learning Shapes — Child Guidance.
Playchips — Milton Bradley.

Peabody Language Development Kit, Level No. P.
13; 15-1; 18; 23-3; 28-3; 34-3; 54-2; 82; 86-1 & 2; 90-1 & 2, etc.

Peabody Language Development Kit, Level No. 1.
148-1; 156-2.

SAMPLE TEST ITEMS

Given four sets of four three-dimensional geometric shapes (circle, square, triangle, diamond), each set containing three objects which are the same and one which is different, the student will indicate whether the objects are the same or different by picking up the object which is different.

Given four sets of four two-dimensional shapes (circle, square, triangle, diamond), each set containing three shapes which are the same and one which is different, the student will indicate whether the shapes are the same or different by pointing to the shape which is different.

1.0 COMPETENCY Pre-Reading

1.5 MODULE CLUSTER Visual Discrimination

1.52 MODULE Size Discrimination

PURPOSE To provide the student with the skills for discriminating size.

BEHAVIORAL OBJECTIVES

Outcome: The student will discriminate between three-dimensional geometric shapes, with respect to size, by picking up the appropriate object(s).

Context: Four sets of four three-dimensional geometric shapes (circle, square, triangle, diamond), each set containing three objects which are the same and one which differs only in size.

Criterion: 100% accuracy.

Outcome: The student will discriminate between two-dimensional geometric shapes, with respect to size, by pointing to the appropriate shape(s).

Context: Four sets of four two-dimensional geometric shapes (circle, square, triangle, diamond), each set containing three shapes which are the same and one which differs only in size.

Criterion: 100% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Three-dimensional objects which differ in size; for instance, blocks.

Size Lotto.

Graduated measuring cups.

Peabody Language Development Kit, Level No. P.
31-3.

Peabody Language Development Kit, Level No. 1
34-3; 43-2; 119-3; 168-2; 179-1.

The following commercially prepared materials may also be found to be suitable resources:
Skillbuilders — Teaching Resources.
Peg Sorting Board — Childcraft.
Ringarounds — Child Guidance.
Learning Tower — Child Guidance.
Size — Developmental Learning.

SAMPLE TEST ITEMS

Given four sets of four three-dimensional geometric shapes (circle, square, triangle, diamond), each set containing three objects which are the same and one which differs only in size, the student will indicate whether the objects are the same or different by picking up the object which is different.

Given four sets of four two-dimensional shapes (circle, square, triangle, diamond), each set containing three shapes which are the same and one which differs only in size, the student will indicate whether the shapes are the same or different by pointing to the shape which is different.

1.0 COMPETENCY Pre-Reading

1.5 MODULE CLUSTER Visual Discrimination

1.53 MODULE Color Discrimination

PURPOSE To provide the student with the skills for discriminating colors.

BEHAVIORAL OBJECTIVE

Outcome: The student will discriminate between colors by responding verbally and/or physically.

Context: Four sets of four sheets of colored paper, each set containing three sheets of paper which are the same color and one which is a different color.

Criterion: 100% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Frostig Program for Visual Perception.

Blocks of assorted colors, colored pegs and beads.

Color chart.

Continental Press Worksheets.

Peabody Language Development Kit, Level No. P
2; 9-1 & 3; 15; 25-2; 42-3; 56-3; 76-3; 86-4; 103; etc.

Peabody Language Development Kit, Level No. 1
11-1; 12-1; 17-2; 19-2; 30-2; 36-1; 37-2; 42-2; 141-3; 149-3.

The following commercially prepared materials may also be found to be suitable resources:
Color Matchettes — Judy.
Tri-color Viewer — Creative Playthings.
Parquetry Designs — Developmental Learning Materials.

SAMPLE TEST ITEM

Given four sets of four sheets of colored paper, each set containing three sheets of paper which are the same color and one which is a different color, the student will indicate whether the colors are the same or different by naming and/or picking up the paper which is a different color.

1.0 COMPETENCY Pre-Reading

1.5 MODULE CLUSTER Visual Discrimination

1.54 MODULE Discrimination of Position

PURPOSE To provide the student with the skills for discriminating position.

BEHAVIORAL OBJECTIVE

Outcome: The student will discriminate between positions by responding verbally and/or physically.

Context: Four sets of four two- or three-dimensional objects, each set containing three objects which are the same and one which differs only in respect of position. example: (( ) (

Criterion: 100% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Peabody Language Development Kit, Level No. 1
27-2; 28-3; 31-4; 38-1; 52-3; 55-3; 62-3; 71-2; 74-3; 83-2; 86-3; 89-3; 95-3; 100-3; 101-3; 109-3; 111-3; 113-3; 134-3; 139-3; 170-3; 171-1; 176-3.

Colored beads, blocks.

The following commercially prepared materials may also be found to be suitable resources:
Space Relationship Cards — Milton Bradley.
Spatial Relationship Picture Cards — Developmental Learning Materials.
Size, Position, Order Transparencies — ABC School Supply.
Perception of Spatial Relationships — Teaching Resources.

SAMPLE TEST ITEM

Given four sets of four two- or three-dimensional objects, each set containing three objects which are the same and one which differs only in respect to position, the student will indicate whether the objects are the same or different by naming and/or pointing to the object which is different.

1.0 COMPETENCY Pre-Reading

1.5 MODULE CLUSTER Visual Discrimination

1.55 MODULE Discrimination of Letters

PURPOSE To provide the student with the skills for discriminating letters.

BEHAVIORAL OBJECTIVE

Outcome: The student will discriminate between letters by pointing to the appropriate letter(s).

Context: Ten sets of four letters, each set containing three letters which are the same and one which is different.

Criterion: 100% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Montessori Form Board.

Sandpaper letters.

Clay.

Three-dimensional letters.

Flannel board letters.

Magnetic letters.

Alphabet dominoes.

The following commercially prepared materials may also be found to be suitable resources:
Stepping Stones — Instructo.

SAMPLE TEST ITEM

Given ten sets of four letters, each set containing three letters which are the same and one which is different, the student will point to the letter which is different.

1.0 COMPETENCY Pre-Reading

1.5 MODULE CLUSTER Visual Discrimination

1.56 MODULE Matching Shape and Form

PURPOSE To provide the student with the skills to match shapes and forms.

BEHAVIORAL OBJECTIVES

Outcome: The student will place together identical three-dimensional objects.

Context: Two sets of three-dimensional objects, randomly ordered, each set containing identical objects.

Criterion: 100% accuracy over three consecutive trials.

Outcome: The student will draw a line between identical geometric shapes.

Context: Two sets of printed geometric shapes, randomly ordered, each set containing identical shapes.

Criterion: 100% accuracy.

Outcome: The student will draw a line between identical printed letters.

Context: Two lists of printed letters, randomly ordered, each list containing identical letters.

Criterion: 100% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Montessori Form Board.

Three-dimensional letters.

Flannel board and letters.

Three-dimensional geometric shapes.

Blocks.

The following commercially prepared materials may also be found to be suitable resources:
Magnetic Spelling and Number Board — Playskool.

SAMPLE TEST ITEMS

Given two sets of three-dimensional objects, randomly ordered, each set containing identical objects, the student will place the identical objects together.

Given two sets of printed geometrical shapes, randomly ordered, each set containing identical shapes, the student will draw a line between the identical shapes.

Given two lines of printed letters, randomly ordered, each list containing identical letters, the student will draw a line between the identical letters.

1.0 COMPETENCY Pre-Reading

1.6 MODULE CLUSTER Visual Memory

1.61 MODULE Visual Memory of Shapes

PURPOSE To provide the student with the skills for visual memory of shapes.

BEHAVIORAL OBJECTIVES

Outcome: The student will point to a shape previously seen.

Context: A three-dimensional geometric shape (circle, square, diamond, triangle) presented for five seconds; presented for recall with three other three-dimensional geometric shapes.

Criterion: 100% accuracy.

Outcome: The student will point to a shape previously seen.

Context: A two-dimensional geometric shape (circle, square, diamond, triangle) presented for five seconds; presented for recall with three other two-dimensional geometric shapes.

Criterion: 100% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Montessori Form Board.

Frostig Program for Visual Perception.

Continental Press Worksheets.

Three-dimensional geometric shapes.

Peabody Language Development Kit, Level No. P
7-1; 12-1 & 2; 20-2; 38-2; 59-3; 67-4.

Peabody Language Development Kit, Level No. 1
148-1.

The following commercially prepared materials may also be found to be suitable resources:
Form Fitter Box — Creative Playthings.
Basic Visual Perception-Color, Size, Shape — Teaching Resources.
Geometric Learning Shapes — Child Guidance.
Play Chips — Milton Bradley.

SAMPLE TEST ITEMS

Given a three-dimensional geometric shape, presented for five seconds and presented for recall with three other three-dimensional geometric shapes, the student will point to the shape previously seen.

Given a two-dimensional geometric shape, presented for five seconds and presented for recall with three other two-dimensional geometric shapes, the student will point to the shape previously seen.

1.0 COMPETENCY Pre-Reading

1.6 MODULE CLUSTER Visual Memory

1.62 MODULE Visual Memory of Colors

PURPOSE To provide the student with the skills for visual memory of colors.

BEHAVIORAL OBJECTIVE

Outcome: The student will point to a color previously seen.

Context: A two- or three-dimensional colored object which has been presented for five seconds presented for recall with three other objects which differ only in color.

Criterion: 100% accuracy over three consecutive trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Frostig Program for Visual Perception.

Blocks of assorted colors, colored pegs and beads.

Continental Press Worksheets.

Color chart.

Crayons.

Peabody Language Development Kit, Level No. 1
69-3; 129-3.

The following commercially prepared materials may also be found to be suitable resources:
Color Matchettes — Judy.
Tri-color Viewer — Creative Playthings.
Parquetry Designs — Developmental Learning Materials.

SAMPLE TEST ITEM

Given a two- or three-dimensional colored object, presented for five seconds and presented for recall with three other objects which differ only in color, the student will point to the color previously seen.

1.0 COMPETENCY Pre-Reading

1.6 MODULE CLUSTER Visual Memory

1.63 MODULE Visual Memory of Objects

PURPOSE To provide the student with the skills for visual memory of objects.

BEHAVIORAL OBJECTIVE

Outcome: The student will point to an object previously seen.

Context: A common classroom object, presented for five seconds; presented for recall with three other common classroom objects.

Criterion: 100% accuracy over three consecutive trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Classroom objects, such as blocks, pencils, rubber bands, and scissors.

Peabody Language Development Kit, Level No. P
8-2; 24-2 & 3; 33-3; 34-4; 36-3; 43-2; 70-2; 75-3; 79-2; 102-3; 127-3; 162-2; 164-2; 168-4.

The following commercially prepared materials may also be found to be suitable resources:
Memory-Auditory and Visual — Teaching Resources.
Memory Game — Milton Bradley.

SAMPLE TEST ITEM

Given a common classroom object, presented for five seconds and presented for recall with three other common classroom objects, the student will point to the object previously seen.

1.0 COMPETENCY Pre-Reading

1.6 MODULE CLUSTER Visual Memory

1.64 MODULE Visual Memory of Letters

PURPOSE To provide the student with the skills for visual memory of letters.

BEHAVIORAL OBJECTIVE

Outcome: The student will point to a letter previously seen.

Context: An upper case letter, presented on a flash card for five seconds; presented for recall with three other upper case letters on flash cards.

Criterion: 100% accuracy over five consecutive trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Cardboard letters.

Flannel board and letters.

Continental Press Worksheets.

The following commercially prepared materials may also be found to be suitable resources:
Memory-Auditory and Visual — Teaching Resources.
Key Teacher — Creative Playthings.
Magnetic Spelling and Number Board — Playskool.
Spill and Spell — American Seating Company.

SAMPLE TEST ITEM

Given an upper case letter, presented on a flash card for five seconds and presented for recall with three other upper case letters on flash cards, the student will point to the letter previously seen.

1.0 COMPETENCY Pre-Reading

1.7 MODULE CLUSTER Visual Sequential Memory

1.71 MODULE Visual Sequential Memory of Shapes

PURPOSE To provide the student with the skills for visual sequential memory of shapes.

BEHAVIORAL OBJECTIVES

Outcome: The student will replace in sequence a series of shapes previously seen.

Context: Three-dimensional circle, square and triangle, presented for five seconds in random sequence; scrambled and presented for recall.

Criterion: 100% accuracy over three consecutive trials.

Outcome: The student will replace in sequence a series of shapes previously seen.

Context: Two-dimensional circle, square, and triangle, presented for five seconds in random sequence; scrambled and presented for recall.

Criterion: 100% accuracy over three consecutive trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Three-dimensional geometric shapes.

Montessori Form Board.

Frostig Program for Visual Perception.

Continental Press Worksheets.

Ferinden. *Educational interpretation of the ITPA.* This booklet gives specific activities which may be used to improve visual sequential memory.

The following commercially prepared materials may also be found to be suitable resources:
Form Fitter Box — Creative Playthings.
Basic Visual Perception — Teaching Resources.
Geometric Learning Shapes — Child Guidance.
Play Chips — Milton Bradley.

Peabody Language Development Kit, Level No. P
108-1.

Peabody Language Development Kit, Level No. 1
56-2.

SAMPLE TEST ITEMS

Given a three-dimensional circle, square and triangle, presented for five seconds in random sequence, then scrambled and presented for recall, the student will replace the shapes in their original sequence.

Given a two-dimensional circle, square and triangle, presented for five seconds in random sequence, then scrambled and presented for recall, the student will replace the shapes in their original sequence.

1.0 COMPETENCY Pre-Reading

1.7 MODULE CLUSTER Visual Sequential Memory

1.72 MODULE Visual Sequential Memory of Colors

PURPOSE To provide the student with the skills for visual sequential memory of colors.

BEHAVIORAL OBJECTIVE

Outcome: The student will replace in sequence a series of colors previously seen.

Context: Three two- or three-dimensional objects differing only in color, presented for five seconds in random sequence; scrambled and presented for recall.

Criterion: 100% accuracy over three trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Frostig Program for Visual Perception.

Blocks of assorted colors.

Color Chart.

Pegs, colored beads.

Crayons.

The following commercially prepared materials may also be found to be suitable resources:
Continental Press Worksheets.
Color Matchettes — Judy.
Tri-color Viewer — Creative Playthings.
Parquetry Designs — Developmental Learning Materials.

Peabody Language Development Kit, Level No. 1
61-2; 96-1; 129-3.

SAMPLE TEST ITEM

Given three two- or three-dimensional objects differing only in color, presented for five seconds in random sequence, then scrambled and presented for recall, the student will replace the objects in their original sequence.

1.0 COMPETENCY Pre-Reading

1.7 MODULE CLUSTER Visual Sequential Memory

1.73 MODULE Visual Sequential Memory of Objects

PURPOSE To provide the student with the skills for visual sequential memory of objects.

BEHAVIORAL OBJECTIVE

Outcome: The student will replace in sequence a series of objects previously seen.

Context: Three small classroom objects presented for five seconds in random sequence; scrambled and presented for recall.

Criterion: 100% accuracy over three consecutive trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Classroom objects (pencil, eraser, block, chalk, crayon, etc.).

Peabody Language Development Kit, Level No. P
111-3.

Peabody Language Development Kit, Level No. 1
35-3; 41-1; 94-1, 4; 116-1; 135-2; 149-1; 164-3; 166-3.

The following commercially prepared materials may also be found to be suitable resources:
Memory-Auditory and Visual — Teaching Resources.
Memory Game — Milton Bradley.

SAMPLE TEST ITEM

Given three small classroom objects presented for five seconds in random sequence, then scrambled and presented for recall, the student will replace the objects in their original sequence.

1.0 COMPETENCY Pre-Reading

1.7 MODULE CLUSTER Visual Sequential Memory

1.74 MODULE Visual Sequential Memory of Letters

PURPOSE To provide the student with the skills for visual sequential memory of letters.

BEHAVIORAL OBJECTIVE

Outcome: The student will replace in sequence a series of letters previously seen.

Context: Three upper case letters presented on flash cards for five seconds in random sequence; scrambled and presented for recall. (Set of five)

Criterion: 100% accuracy over three consecutive trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The following commercially prepared materials may be found to be suitable resources:
Memory-Auditory and Visual — Teaching Resources.
Continental Press — Worksheets.
Key Teacher — Creative Playthings.
Magnetic Spelling and Number Board — Playskool.
Cardboard Letters — Milton Bradley.
Flannel Board Letters — Milton Bradley.
Spill and Spell — American Seating Company.

SAMPLE TEST ITEM

Given three upper case letters presented on flash cards for five seconds in random sequence, then scrambled and presented for recall, the student will replace the letters in their original sequence. (set of five)

1.0 COMPETENCY Pre-Reading

1.8 MODULE CLUSTER Letter Knowledge

1.81 MODULE Matching

PURPOSE To provide the student with the skills for matching letters.

BEHAVIORAL OBJECTIVES

Outcome: The student will point to a letter which matches a stimulus letter.

Context: A printed series of upper case letters in random sequence; presented with a stimulus letter, on a flash card, which is also included in the series.

Criterion: 100% accuracy over five consecutive trials.

Outcome: The student will point to a letter which matches a stimulus letter.

Context: A printed series of lower case letters in random sequence; presented with a stimulus letter, on a flash card, which is also included in the series.

Criterion: 100% accuracy over five consecutive trials.

Outcome: The student will point to a letter which matches a stimulus letter.

Context: A printed word; presented with a stimulus letter, on a flash card, which is also in the word.

Criterion: 100% accuracy over five consecutive trials in each context.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Three-dimensional letters.

Form-board.

Alphabet flash cards.

Flannel board and letters.

The following commercially prepared materials may also be found to be suitable resources:
Magnetic Spelling & Number Board — Playskool.
Alphabet Puzzle Board — Playskool.

SAMPLE TEST ITEMS

Given a printed series of upper case letters in random sequence, presented with a stimulus letter on a flash card which is also in the series, the student will point to the letter which matches the stimulus letter.

Given a printed series of lower case letters in random sequence, presented with a stimulus letter on a flash card which is also in the series, the student will point to the letter which matches the stimulus letter.

Given a printed word, presented with a stimulus letter on a flash card, which is also in the word, the student will point to the letter which matches the stimulus letter.

1.0 COMPETENCY Pre-Reading

1.8 MODULE CLUSTER Letter Knowledge

1.82 MODULE Recognition

PURPOSE To provide the student with the skills to match the name of a letter with its visual counterpart.

BEHAVIORAL OBJECTIVES

Outcome: The student will point to a letter which has been named.

Context: A series of ten printed upper case letters in random sequence and verbal directions naming one of the letters.

Criterion: Correct recognition of 90% of the letters of the alphabet, upper case.

Outcome: The student will point to a letter which has been named.

Context: A series of ten printed lower case letters in random sequence and verbal directions naming one of the letters.

Criterion: Correct recognition of 90% of the letters of the alphabet, lower case.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Alphabet flash cards.

Alphabet Bingo.

Three-dimensional letters.

Alphabet Lotto.

Flannel board and letters.

Cardboard letters.

The following commercially prepared materials may also be found to be suitable resources:
Jumbo Letter Card Kit — Ideal.
Alphabet Puzzle Board — Playskool.
Letter Constancy Cards — Developmental Learning Materials.

SAMPLE TEST ITEMS

Given a series of ten printed upper case letters in random sequence and verbal directions naming one of the letters, the student will point to the letter which has been named.

Given a series of ten printed lower case letters in random sequence and verbal directions naming one of the letters, the student will point to the letter which has been named.

1.0 COMPETENCY Pre-Reading

1.8 MODULE CLUSTER Letter Knowledge

1.83 MODULE Identification

PURPOSE To provide the student with the skills for the identification of letters.

BEHAVIORAL OBJECTIVE

Outcome: The student will name the letters of the alphabet. (Set of 15 letters)

Context: Any printed letter on a flash card, upper and lower case.

Criterion: 90% accuracy, all letters of the alphabet, upper and lower case.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

See Appendix for examples.

Alphabet flash cards.

Language Master Cards. For instance, the teacher might have the letter printed on a Language Master Card (either lower or upper case) and have the student record the name of the letter. A teacher confirmation might also be given.

Alphabet Bingo.

Alphabet Lotto.

Flannel board and letters.

The following commercially prepared materials may also be found to be suitable resources:
Magnetic Spelling Board — Playskool.
Alphabet Puzzle Board — Playskool.
Letter Constancy Cards — Developmental Learning Materials.

SAMPLE TEST ITEM

Given any letter presented on a flash card, either upper or lower case, the student will name the letter. (Set of 15 letters)

1.0 COMPETENCY Pre-Reading

1.8 MODULE CLUSTER Letter Knowledge

1.84 MODULE Recall and Reproduction

PURPOSE To provide the student with the skills for recall and reproduction of letters.

BEHAVIORAL OBJECTIVE

Outcome: The student will print letters of the alphabet, both upper and lower case.

Context: Verbally presented, in random order, all 26 letters.

Criterion: 75% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

See Appendix for examples.

Alphabet flash cards.

Language Master Cards. For instance, the student might be presented verbally with the name of a letter and a word in which it is heard. He would then write the letter.

Sandpaper letters.

Tracing paper.

Alphabet Bingo.

Flannel board and letters.

The following commercially prepared materials may also be found to be suitable resources:
Magnetic Spelling and Number Board — Playskool.
Alphabet Puzzle Board — Playskool.
Letter Constancy Cards — Developmental Learning Materials.

SAMPLE TEST ITEM

Given any letter of the alphabet, verbally presented, the student will print the letter in both upper and lower case. (26 letters)

2.0 COMPETENCY Reading — Phonetics

2.1 MODULE CLUSTER Consonants

2.11 MODULE Single Consonants

PURPOSE To provide the student with the skills for naming and verbalizing the phonetic sounds of consonants.

BEHAVIORAL OBJECTIVES

Outcome: The student will select the consonants.

Context: All letters, presented on flash cards, in random order.

Criterion: Clinical Teacher judgement.

Outcome: The student will verbalize the correct phonetic sounds of the consonants.

Context: All consonants, presented on flash cards, in random order.

Criterion: Clinical Teacher judgement.

INSTRUCTIONAL RESOURCES / OPTIONS /ACTIVITIES

See Appendix.

Flash cards.

Sandpaper letters.

Language Master Cards. For instance, the teacher might make a set of cards, each card having a letter printed on it. The student could record, and name the letter or verbalize its phonetic sound.

SAMPLE TEST ITEMS

Given a set of flash cards including all letters in random order, the student will select the consonants.

Given a set of flash cards including all the consonants in random order, the student will verbalize the correct phonetic sounds of the consonants.

2.0 COMPETENCY Reading — Phonetics

2.1 MODULE CLUSTER Consonants

2.12 MODULE Initial Consonants

PURPOSE To provide the student with the skills for naming and verbalizing the sounds of initial consonants.

BEHAVIORAL OBJECTIVES

Outcome: The student will verbalize the correct phonetic sound for an initial consonant previously heard.

Context: Words presented verbally, including all initial consonants.

Criterion: Clinical Teacher judgement.

Outcome: The student will name an initial consonant previously heard.

Context: A list of words presented verbally, including all initial consonants.

Criterion: Clinical Teacher judgement.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

See Appendix for examples.

Durrell-Murphy. *Speech to print phonics.*

Lyons & Carnahan. *Phonics we use: Book, A, B, C.*

Durrell-Murphy Phonics Set.

Barnell-Loft. *Working with sounds: A, B.*

The following commercially prepared material may also be found to be suitable as resources:
Flash cards.
Consonant Lotto.
Ideal Reading Tapes.
Filmstrip-Record—Continental Press.

SAMPLE TEST ITEMS

Given a list of words presented verbally, including all initital consonants in random order, the student will verbalize the correct phonetic sound for the initial consonant he heard.

Given a list of words presented verbally in random order, including all initial consonants, the student will name the initial consonant which he heard.

2.0 COMPETENCY Reading — Phonetics

2.1 MODULE CLUSTER Consonants

2.13 MODULE Final Consonants

PURPOSE To provide the student with the skills for naming and verbalizing the sounds for final consonants.

BEHAVIORAL OBJECTIVES

Outcome: The student will verbalize the phonetic sound of a final consonant previously heard.

Context: A list of words presented verbally, including all final consonants.

Criterion: Clinical Teacher judgement.

Outcome: The student will name a final consonant previously heard.

Context: A list of words presented verbally, including all final consonants.

Criterion: Clinical Teacher judgement.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

See Appendix for examples.

Durrell-Murphy. *Speech to print phonics.*

Lyons & Carnahan. *Phonics we use: Book B.*

Durrell-Murphy Phonics Set.

Barnell-Loft. *Working with sounds: B.*

The following commercially prepared material may also be found to be suitable as resources:
Ideal Reading Tapes.
Filmstrip - Continental Press.
Flash Cards.
Consonant Lotto.

SAMPLE TEST ITEMS

Given a list of words presented verbally, including all final consonants in random order, the student will verbalize the final consonant which he heard.

Given a list of words presented verbally, including all the final consonants in random order, the student will name the final consonant which he heard.

2.0 COMPETENCY Reading — Phonetics

2.1 MODULE CLUSTER Consonants

2.14 MODULE Medial Consonants

PURPOSE To provide the student with the skills for naming and verbalizing the sounds of medial consonants.

BEHAVIORAL OBJECTIVES

Outcome: The student will verbalize the correct phonetic sound for a medial consonant previously heard.

Context: A list of words verbally presented, including all medial consonants.

Criterion: Clinical Teacher judgement.

Outcome: The student will name a medial consonant previously heard.

Context: A list of words verbally presented, including all medial consonants.

Criterion: Clinical Teacher judgement.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

See Appendix for examples.

Durrell-Murphy. *Speech to print phonics.*

Lyons & Carnahan. *Phonics we use: Book B.*

Durrell-Murphy Phonics Set.

Barnell-Loft. *Working with sounds: B.*

The following commercially prepared material may also be found suitable as resources:
Ideal Reading Tapes.
Filmstrip-Reading — Continental Press.
Flash Cards.
Consonant Lotto.

SAMPLE TEST ITEMS

Given a list of words presented verbally, including all medial consonants, *the student will verbalize the correct phonetic* sound of the medial consonant which he heard.

Given a list of words presented verbally, including all medial consonants, the student will name the medial consonant which he heard.

2.0 COMPETENCY Reading — Phonetics

2.1 MODULE CLUSTER Consonants

2.15 MODULE Consonant Blends

PURPOSE To provide the student with the skills for naming and verbalizing the phonetic sound of consonant blends.

BEHAVIORAL OBJECTIVES

Outcome: The student will select the consonant blends.

Context: Presented on twenty flash cards, ten of which are consonant blends and ten of which are random samples of letter combinations.

Criterion: Clinical Teacher judgement.

Outcome: The student will verbalize the phonetic sound of the consonant blends.

Context: Presented on flash cards, including all consonant blends.

Criterion: Clinical Teacher judgement.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

See Appendix for examples.

Lyons & Carnahan. *Phonics we use: Book B, C, D, E.*

Durrell-Murphy. *Speech to print phonics.*

Durrell-Murphy Phonics Set.

Barnell-Loft.*Working with sounds: B, C.*

The following commercially prepared material may also be found suitable as resources:
Flash Cards.
Consonant Lotto.
Phono-Word Wheels.
Crossword Puzzles.
Scrabble.
Match Game — matching initial blend with picture of an object starting with that blend.
Ideal Reading Tapes.
Continental Press Work Sheets.

SAMPLE TEST ITEMS

Given a set of twenty flash cards, ten of which are consonant blends and ten of which are random samples of letter combinations, the student will select the consonant blends.

Given a set of flash cards including all the consonant blends, the student will verbalize the correct phonetic sound of the consonant blends.

2.0 COMPETENCY Reading — Phonetics

2.1 MODULE CLUSTER Consonants

2.16 MODULE Initial Consonant Blends

PURPOSE To provide the student with the skills for naming and verbalizing the phonetic sound of initial consonant blends.

BEHAVIORAL OBJECTIVES

Outcome: The student will name an initial consonant blend previously heard.

Context: List of words presented verbally, including all initial consonant blends.

Criterion: Clinical Teacher judgement.

Outcome: The student will verbalize the correct phonetic sound of an initial consonant blend previously heard.

Context: A list of words presented verbally, including all initial consonant blends.

Criterion: Clinical Teacher judgement.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

See Appendix for examples.

Durrell-Murphy. *Speech to print phonics.*

Lyons & Carnahan. *Phonics we use: Book B, C, D, E.*

Durrell-Murphy Phonics Set.

Barnell-Loft. *Working with sounds: B, C.*

The following commercially prepared material may also be found suitable as resources:
Flash Cards.
Consonant Lotto.
Phono-Word Wheels.
Crossword Puzzles.
Scrabble.
Match Game — matching initial blend with picture of an object starting with that blend.
Ideal Reading Tapes.
Continental Press Work Sheets.

SAMPLE TEST ITEMS

Given a list of words presented verbally, including all initial consonant blends, the student will name the initial consonant blend which he heard.

Given a list of words presented verbally, including all initial consonant blends, the student will verbalize the correct phonetic sound of the initial consonant blend which he heard.

2.0 COMPETENCY Reading — Phonetics

2.1 MODULE CLUSTER Consonants

2.17 MODULE Final Consonant Blends

PURPOSE To provide the student with the skills for naming and verbalizing the correct phonetic sound for final consonant blends.

BEHAVIORAL OBJECTIVES

Outcome: The student will verbalize the correct phonetic sound of a final consonant blend previously heard.

Context: A list of words presented verbally, including all final consonant blends. (ten words)

Criterion: Clinical Teacher judgement.

Outcome: The student will name a final consonant blend previously heard.

Context: A list of ten words, presented verbally, including all final consonant blends.

Criterion: Clinical Teacher judgement.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

See Appendix for examples.

Lyons & Carnahan. *Phonics we use: Book B, C, D, E.*

Durrell-Murphy. *Speech to print phonics.*

Barnell-Loft. *Working with sounds: B, C.*

Durrell-Murphy Phonics Set.

The following commercially prepared material may also be found suitable as resources:
Flash Cards.
Consonant Lotto.
Phono-Word Wheels.
Crossword Puzzles — Dolch.
Scrabble.
Ideal Reading Tapes.
Continental Press Worksheets.

SAMPLE TEST ITEMS

Given a list of ten words presented verbally, including all final consonant blends, the student will verbalize the correct phonetic sound of the final consonant blend which he heard.

Given a list of ten words presented verbally, including all final consonant blends, the student will name the final consonant blend he heard.

2.0 COMPETENCY Reading — Phonetics

2.1 MODULE CLUSTER Consonants

2.18 MODULE Consonant Digraphs

PURPOSE To provide the student with the skills for naming and verbalizing the phonetic sounds of consonant digraphs.

BEHAVIORAL OBJECTIVES

Outcome: The student will select a consonant digraph previously heard.

Context: Presented on twenty flash cards, ten of which are consonant digraphs and ten of which are random samples of letter combinations.

Criterion: Clinical Teacher judgement.

Outcome: The student will verbalize the correct phonetic sounds of the consonant digraph.

Context: Presented on flash cards, including all consonant digraphs.

Criterion: Clinical Teacher judgement.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

See Appendix for examples.

Barnell-Loft. *Working with sounds: B, C.*

Durrell-Murphy. *Speech to print phonics.*

Lyons & Carnahan. *Phonics we use.*

Hafner. *Patterns of teaching reading in the elementary school.* pp. 100-101 & 298.

Durrell-Murphy Phonics Set.

The following commercially prepared material may also be found suitable as resources:
Record and Filmstrip — Continental Press.
Ideal Reading Tapes.

SAMPLE TEST ITEMS

Given a set of twenty flash cards, ten of which are consonant digraphs and ten of which are random samples of letter combinations, the student will select the consonant digraphs.

Given a set of flash cards including all the consonant digraphs, the student will verbalize the correct phonetic sound of the consonant digraphs.

2.0 COMPETENCY Reading — Phonetics

2.1 MODULE CLUSTER Consonants

2.19 MODULE Initial Consonant Digraphs

PURPOSE To provide the student with the skills for naming and verbalizing the phonetic sounds of initial consonant digraphs.

BEHAVIORAL OBJECTIVES

Outcome: The student will name an initial consonant digraph previously heard.

Context: A list of words presented verbally, including all initial consonant digraphs.

Criterion: Clinical Teacher judgement.

Outcome: The student will verbalize the correct phonetic sound of an initial consonant previously heard.

Context: A list of words presented verbally, including all initial consonant digraphs.

Criterion: Clinical Teacher judgement.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

See Appendix for examples.

Barnell-Loft. *Working with sounds: B, C.*

Durrell-Murphy. *Speech to print phonics.*

Lyons & Carnahan. *Phonics we use.*

Hafner. *Patterns of teaching reading in the elementary school.* pp. 100-101 & 298.

Durrell-Murphy phonics set.

The following commercially prepared material may also be found suitable as resources:
Record and Filmstrip — Continental Press.
Ideal Reading Tapes.

SAMPLE TEST ITEMS

Given a list of words presented verbally, including all initial consonant digraphs, the student will name the initial consonant digraph which he heard.

Given a list of words presented verbally, including all initial consonant digraphs, the student will verbalize the correct phonetic sound of the initial consonant digraph which he heard.

2.0 COMPETENCY Reading — Phonetics

2.1 MODULE CLUSTER Consonants

2.191 MODULE Final Consonant Digraphs

PURPOSE To provide the student with the skills for naming and verbalizing the phonetic sounds of final consonant digraphs.

BEHAVIORAL OBJECTIVES

Outcome: The student will verbalize the correct phonetic sound for a final consonant digraph previously heard.

Context: A list of words presented verbally, including all final digraphs.

Criterion: Clinical Teacher judgement.

Outcome: The student will name a final consonant digraph previously heard.

Context: A list of words, presented verbally, including all final digraphs.

Criterion: Clinical Teacher judgement.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

See Appendix for examples.

Durrell-Murphy. *Phonics we use: C.*

Durrell-Murphy. *Speech to print phonics.*

Barnell-Loft. *Working with sounds: B.*

The following commercially prepared material may also be found suitable as resources:
Ideal Reading Tapes.
Record and Filmstrip — Continental Press.

SAMPLE TEST ITEMS

Given a list of words presented verbally, including all final consonant digraphs, the student will verbalize the correct phonetic sound of the final consonant digraph he heard.

Given a list of words presented verbally, including all final consonant digraphs, the student will name the final consonant digraph which he heard.

2.0 COMPETENCY Reading — Phonetics

2.2 MODULE CLUSTER Vowels

2.21 MODULE Single Vowels

PURPOSE To provide the student with the skills for naming and verbalizing the phonetic sounds of vowels.

BEHAVIORAL OBJECTIVES

Outcome: The student will select the vowels.

Context: Presented on flash cards, in random order including all letters.

Criterion: Clinical Teacher judgement.

Outcome: The student will verbalize the correct phonetic sound of the short vowels.

Context: Presented on flash cards in random order, including all short vowels.

Criterion: Clinical Teacher judgement.

Outcome: The student will verbalize the correct phonetic sound of the long vowels.

Context: Presented on flash cards in random order including all long vowels.

Criterion: Clinical Teacher judgement.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

See Appendix for examples.

The following commercially prepared material may also be found suitable as resources:
Continental Press Worksheets.
Vowel Picture Cards — Ideal No. 741.
Flash cards of vowel letters.

SAMPLE TEST ITEMS

Given a set of flash cards including all letters in random order, the student will select the vowels.

Given a set of flash cards including all the vowels in random order the student will verbalize the correct phonetic sound of the short vowels.

Given a set of flash cards including all the vowels in random order, the student will verbalize the correct phonetic sound of the long vowels.

2.0 COMPETENCY Reading — Phonetics

2.2 MODULE CLUSTER Vowels

2.22 MODULE Medial Vowels

PURPOSE To provide the student with the skills for naming and verbalizing the phonetic sounds of medial vowels.

BEHAVIORAL OBJECTIVES

Outcome: The student will verbalize the correct phonetic sound of a medial vowel previously heard.

Context: A list of words, verbally presented, including all the medial vowels, both long and short.

Criterion: Clinical Teacher judgement.

Outcome: The student will name medial vowels, previously heard.

Context: A list of words, verbally presented, including all the medial vowels, both long and short.

Criterion: Clinical Teacher judgement.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

See Appendix for examples.

The following commercially prepared material may also be found suitable as resources:
Continental Press Worksheets.
Vowel Picture Cards — Ideal No. 741.
Flash cards of vowels.

SAMPLE TEST ITEMS

Given a list of words, presented verbally, including all the medial vowels, both long and short, the student will verbalize the correct phonetic sound of the medial vowel.

Given a list of words, presented verbally, including all the medial vowels, both long and short, the student will name the medial vowels.

2.0 COMPETENCY Reading — Phonetics

2.2 MODULE CLUSTER Vowels

2.23 MODULE Vowel Digraphs

PURPOSE To provide the student with the skills for naming and verbalizing the phonetic sounds of vowel digraphs.

BEHAVIORAL OBJECTIVES

Outcome: The student will select the vowel digraphs.

Context: Presented on twenty flash cards, ten vowel digraphs and ten random letter combinations.

Criterion: Clinical Teacher judgement.

Outcome: The student will verbalize the correct phonetic sound of the vowel digraphs.

Context: All vowel digraphs, individually presented on flash cards.

Criterion: Clinical Teacher judgement.

Outcome: The student will verbalize the correct phonetic sound of a vowel digraph previously heard.

Context: A list of words presented orally, including all vowel digraphs.

Criterion: Clinical Teacher judgement.

Outcome: The student will name a vowel digraph previously heard.

Context: A list of words presented orally, including all vowel digraphs.

Criterion: Clinical Teacher judgement.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

See Appendix.

Lyons & Carnahan. *Phonics we use.*

Flash cards of vowel digraphs.

Barnell-Loft. *Working with sounds.*

Durrell-Murphy Phonics Set.

Durrell-Murphy. *Speech to print phonics.*

The following commercially prepared materials may also be found to be suitable as resources:
Vowel Picture Cards — Ideal.

SAMPLE TEST ITEMS

Given a set of twenty flash cards, ten of which are vowel digraphs and ten of which are random letter combinations, the student will select the vowel digraphs.

Given a set of flash cards including all vowel digraphs, the student will verbalize the correct phonetic sound of the vowel digraphs.

Given a list of words presented orally, including all vowel digraphs, the student will verbalize the correct phonetic sound of the vowel digraph which he heard.

Given a list of words presented orally, including all vowel digraphs, the student will name the vowel digraph which he heard.

2.0 COMPETENCY Reading — Phonetics

2.2 MODULE CLUSTER Vowels

2.24 MODULE Vowel Diphthongs

PURPOSE To provide the student with the skills for naming and verbalizing the phonetic sounds of vowel diphthongs.

BEHAVIORAL OBJECTIVES

Outcome: The student will select the vowel diphthongs.

Context: Presented on twenty flash cards, ten of which are vowel diphthongs and ten of which are random samples of letter combinations.

Criterion: Clinical Teacher judgement.

Outcome: The student will verbalize the correct phonetic sound of the vowel diphthongs.

Context: Presented on flash cards, including all vowel diphthongs.

Criterion: Clinical Teacher judgement.

Outcome: The student will verbalize the correct phonetic sound of a vowel diphthong previously heard.

Context: A list of ten words presented verbally, including all vowel diphthongs.

Criterion: Clinical Teacher judgement.

Outcome: The student will name a vowel diphthong previously heard.

Context: A list of ten words presented verbally, including all vowel diphthongs.

Criterion: Clinical Teacher judgement.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

See Appendix.

Flash cards containing vowel diphthongs.

Lyons & Carnahan. *Phonics we use.*

Durrell-Murphy phonics set.

Durrell-Murphy. *Speech to print phonics.*

Barnell-Loft. *Working with sounds.*

The following commercially prepared materials may also be found to be suitable as resources:
Vowel Picture Cards — Ideal.

SAMPLE TEST ITEMS

Given a set of twenty flash cards, ten of which are vowel diphthongs and ten of which are random samples of letter combinations, the student will select the vowel diphthongs.

Given a set of flash cards including all the vowel diphthongs, the student will verbalize the correct phonetic sound of the vowel diphthongs.

Given a list of ten words presented orally, including all the vowel diphthongs, the student will verbalize the correct phonetic sound of the vowel diphthong which he heard.

Given a list of ten words presented orally, including all the vowel diphthongs, the student will name the vowel diphthong which he heard.

3.0 COMPETENCY Reading — Linguistics

3.1 MODULE CLUSTER Word Forms

3.11 MODULE Root Words

PURPOSE To provide the student with the skills for identification of root words.

BEHAVIORAL OBJECTIVE

Outcome: The student will circle a root word.

Context: A list of ten printed words, each of which includes a prefix and/or suffix.

Criterion: 80% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

See Appendix.

Lyons & Carnahan. *Phonics we use.*

Stanwix. *Developing functional basic reading skills.*

Stanwix series readers.

Spice. *Suggested activities to motivate the teaching of language arts,* p. 199.

The following commercially prepared materials may also be found to be suitable as resources:
Everyday Language Skills Set — Instructor.
Word Building Charts — Ideal.

SAMPLE TEST ITEM

Given a list of ten printed words, each of which includes a prefix and/or suffix, the student will circle the root word.

3.0 COMPETENCY Reading — Linguistics

3.1 MODULE CLUSTER Word Forms

3.12 MODULE Compound Words

PURPOSE To provide the student with the skills for identifying, forming, and dividing compound words.

BEHAVIORAL OBJECTIVES

Outcome: The student will circle a compound word.

Context: A list of ten printed words, five of which are compound words.

Criterion: 80% accuracy.

Outcome: The student will draw a line between (match, place beside, print both roots) two root words which form a compound word.

Context: Two lists of root words, each containing five words, which may be paired to form five compound words.

Criterion: 80% accuracy.

Outcome: The student will separate a compound word into its root words.

Context: A list of ten compound words.

Criterion: 80% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

See Appendix.

Stanwix. *Developing functional basic reading skills.*

Stanwix series readers.

Lyons & Carnahan. *Phonics we use.*

Spice. *Suggested activities to motivate the teaching of the language arts,* p. 198.

The following commercially prepared materials may also be found to be suitable as resources:
Oral Reading and Linguistic Series — Benefic Press.
Word Building Charts — Ideal.
Everyday Language Skills Set — Instructor.

SAMPLE TEST ITEMS

Given a list of ten printed words, five of which are compound words, the student will circle the compound words.

Given two lists of root words, each containing five words, which may be paired to form five compound words, the student will draw a line between each pair of root words.

Given a list of ten compound words, the student will separate each word into its root words.

3.0 COMPETENCY Reading — Linguistics

3.1 MODULE CLUSTER Word Forms

3.13 MODULE Plurals

PURPOSE To provide the student with the skills for rule application regarding plurals.

BEHAVIORAL OBJECTIVES

Outcome: The student will write the plurals of words which follow common rules.

Context: A list of ten printed words, whose plurals are formed by adding "s" or "es," changing "y" to "i" and adding "es," and "f" to "v" and adding "es."

Criterion: 80% accuracy.

Outcome: The student will write the plurals of words which do not follow common rules.

Context: A list of ten printed words whose plurals do not follow the common rules (e.g., fish, sheep, deer, ox, man, mouse, goose, tooth, child).

Criterion: 80% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

See Appendix.

The following commercially prepared materials may also be found to be suitable as resources:
Spelling Generalization Charts — Ideal.

SAMPLE TEST ITEMS

Given a list of ten printed words whose plurals are formed by adding "s" or "es," changing "y" to "i" and adding "es," and changing "f" to "v" and adding "es," the student will write the plurals of the words.

Given a list of ten printed words whose plurals do not follow the common rules, the student will write the plurals of the words.

3.0 COMPETENCY Reading — Linguistics

3.1 MODULE CLUSTER Word Forms

3.14 MODULE Prefixes

PURPOSE To provide the student with the skills for identification and rule application regarding prefixes.

BEHAVIORAL OBJECTIVES

Outcome: The student will circle a prefix.

Context: A list of ten printed words, each containing a prefix.

Criterion: 80% accuracy.

Outcome: The student will circle a prefix.

Context: A printed sentence containing at least one word with a prefix.

Criterion: 60% accuracy.

Outcome: The student will add a prefix to a root word, making a meaningful word.

Context: A list of ten printed words and a list of prefixes.

Criterion: Clinical Teacher judgement.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

See Appendix.

Lyons & Carnahan. *Phonics we use.*

Hafner. *Patterns of teaching reading in the elementary school,* pp. 112-3.

Durkin. *Teaching them to read,* pp. 296-298.

Barbe. *Barbe reading skills check list.*

The following commercially prepared materials may also be found to be suitable as resources:
Everyday Language Skills Set — Instructor.
Take Game — Dolch.
Blink Letters — Milton Bradley.
Conquests in Reading — Webster.
Word Building Charts — Ideal.
Spelling Generalization Charts — Ideal.
Word Prefixes — Instructional Materials.

SAMPLE TEST ITEMS

Given a list of ten printed words, each word containing a prefix, the student will circle the prefixes.

Given a printed sentence containing at least one word with a prefix, the student will circle the prefixes.

Given a list of ten printed words and a corresponding list of ten printed prefixes, the student will add the prefixes to the words to form meaningful words.

3.0 COMPETENCY Reading — Linguistics

3.1 MODULE CLUSTER Word Forms

3.15 MODULE Suffixes

PURPOSE To provide the student with the skills for identification and rule application regarding suffixes.

BEHAVIORAL OBJECTIVES

Outcome: The student will circle a suffix.

Context: A list of ten printed words, each containing a suffix.

Criterion: 80% accuracy.

Outcome: The student will circle a suffix.

Context: A printed sentence containing at least one word with a suffix.

Criterion: 60% accuracy over five sentences.

Outcome: The student will add a suffix to a root word, forming a meaningful word.

Context: A list of ten printed words and a list of printed suffixes.

Criterion: Clinical Teacher judgement.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

See Appendix.

Hafner. *Patterns of teaching reading in the elementary school*, pp. 112-3.

Durkin. *Teaching them to read*, pp. 296, 298.

Barbe. *Barbe reading skills check list.*

Lyons & Carnahan. *Phonics we use.*

The following commercially prepared materials may also be found to be suitable as resources:
Everyday Language Skills Set — Instructor.
Take Game — Dolch.
Blink Letters — Milton Bradley.
Conquests in Reading — Webster.
Word Suffixes — Instructional Materials.
Word Building Charts — Ideal.
Spelling Generalization Charts — Ideal.

SAMPLE TEST ITEMS

Given a list of ten printed words, each containing a suffix, the student will circle a suffix.

Given a printed sentence containing at least one word with a suffix, the student will circle the suffix.

Given a list of ten printed words and a corresponding list of ten printed suffixes, the student will add a suffix to a root word to form a meaningful word.

3.0 COMPETENCY Reading — Linguistics

3.1 MODULE CLUSTER Word Forms

3.16 MODULE Contractions

PURPOSE To provide the student with the skills for identification and rule application regarding contractions.

BEHAVIORAL OBJECTIVES

Outcome: The student will circle the contractions.

Context: A list of ten printed words, five of which are contractions.

Criterion: 80% accuracy.

Outcome: The student will circle the contractions.

Context: A printed sentence containing at least one contraction.

Criterion: 80% accuracy.

Outcome: The student will print contractions correctly.

Context: A printed list of five expressions which may be made into contractions.

Criterion: 80% accuracy.

Outcome: The student will pronounce contractions and print the correct root words of the contractions.

Context: A printed list of five contractions.

Criterion: 80% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

See Appendix.

Stanwix. *Developing functional basic reading skills.*

Stanwix series readers.

Spice. *Suggested activities to motivate the teaching of the language arts,* p. 34.

The following commercially prepared materials may also be found to be suitable as resources:
Word Building Charts — Ideal.
Spelling Generalization Charts — Ideal.
Everyday Language Skills Set — Instructor.

SAMPLE TEST ITEMS

Given a list of ten printed words, five of which are contractions, the student will circle the contractions.

Given a printed sentence containing at least one contraction, the student will circle the contraction(s).

Given a printed list of five expressions which may be made into contractions, the student will print contractions, including apostrophes.

Given a printed list of five contractions, the student will pronounce the contractions and print the correct root words of the contractions.

3.0 COMPETENCY Reading — Linguistics

3.1 MODULE CLUSTER Word Forms

3.17 MODULE Possessives

PURPOSE To provide the student with the skills for rule application regarding possessives.

BEHAVIORAL OBJECTIVES

Outcome: The student will form possessives by adding an apostrophe and an "s" to a singular noun.

Context: A printed list of ten singular nouns which do not end in "s."

Criterion: 80% accuracy.

Outcome: The student will form possessives by adding an apostrophe or an apostrophe and an "s" to a noun which ends in "s."

Context: A printed list of ten nouns, plural and/or singular, which end in "s."

Criterion: 80% accuracy.

Outcome: The student will form possessives by adding an apostrophe and an "s" to a plural noun.

Context: A printed list of ten *plural* nouns which do not end in "s."

Criterion: 80% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

See Appendix.

The following commercially prepared materials may also be found to be suitable as resources:
Word Building Charts — Ideal.

SAMPLE TEST ITEMS

Given a printed list of ten singular nouns which do not end in "s," the student will form the possessive by adding an apostrophe and an "s."

Given a printed list of ten nouns, plural and/or singular, which end in "s," the student will form the possessive by adding an apostrophe.

Given a printed list of ten plural nouns which do not end in "s," the student will form the possessive by adding an apostrophe and an "s."

3.0 COMPETENCY Reading — Linguistics

3.1 MODULE CLUSTER Word Forms

3.18 MODULE Syllabication

PURPOSE To provide the student with the skills for identification and rule application regarding syllables.

BEHAVIORAL OBJECTIVES

Outcome: The student will state the number of syllables in a word previously heard.

Context: A list of ten words presented verbally, containing from one to four syllables.

Criterion: 80% accuracy.

Outcome: The student will correctly divide words into syllables.

Context: A printed list of ten two-syllable words, containing double medial consonants.

Criterion: 80% accuracy.

Outcome: The student will correctly divide words into syllables.

Context: A printed list of ten two-syllable words, containing different medial consonants.

Criterion: 80% accuracy.

Outcome: The student will correctly divide words into syllables.

Context: A printed list of ten three- and/or four-syllable words.

Criterion: 80% accuracy.

Outcome: The student will combine syllables verbally to form a word.

Context: A list of ten two-, three-, or four-syllable words, presented verbally by syllable, at the rate of one per second.

Criterion: 80% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

See Appendix.

SRA Reading Kit.

The following commercially prepared materials may also be found to be suitable as resources:
Syllable Concept — Educators.
Syllable Game — Dolch.
Everyday Language Skills Set — Instructor.

SAMPLE TEST ITEMS

Given a list of ten words presented verbally, each word containing from one to four syllables, the student will state the number of syllables in each word.

Given a printed list of ten two-syllable words, each word containing double medial consonants, the student will correctly divide each word into its syllables.

Given a printed list of ten two-syllable words, each word containing different medial consonants, the student will correctly divide each word into its syllables.

Given a printed list of ten three- and/or four-syllable words, the student will correctly divide each word into its syllables.

Given a list of ten two-, three-, or four-syllable words, presented orally by syllable at the rate of one syllable per second, the student will combine the syllables to form the word.

3.0 COMPETENCY Reading — Linguistics

3.2 MODULE CLUSTER Sentences

3.21 MODULE Capitalization

PURPOSE To provide the student with the skills for identification and rule application regarding capitalization.

BEHAVIORAL OBJECTIVES

Outcome: The student will circle capitalized words.

Context: A list of ten printed words, five of which are capitalized.

Criterion: 90% accuracy.

Outcome: The student will circle capitalized words.

Context: A printed sentence containing at least two capitalized words. (Series of five sentences)

Criterion: 80% accuracy.

Outcome: The student will capitalize proper nouns and words at the beginning of a sentence.

Context: A series of five sentences, all printed in lower case.

Criterion: 80% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

See Resources listed with Modules 1.81, 1.82, 1.83 and 1.84.

The following commercially prepared materials may also be found to be suitable as resources:
Word Builders — Instructional Materials.
Everyday Language Skills Set — Instructor.

SAMPLE TEST ITEMS

Given a list of ten printed words, five of which are capitalized, the student will circle the capitalized words.

Given five printed sentences, each sentence containing at least two capitalized words, the student will circle the capitalized words.

Given a series of five sentences, all printed in lower case, the student will capitalize the proper nouns and words at the beginning of the sentences.

3.0 COMPETENCY Reading — Linguistics

3.2 MODULE CLUSTER Sentences

3.22 MODULE Punctuation

PURPOSE To provide the student with the skills for identification and rule application regarding punctuation.

BEHAVIORAL OBJECTIVES

Outcome: The student will circle punctuation marks.

Context: A list of ten printed sentences which contain at least three of each of the following punctuation marks: period, question mark, quotation marks, comma, exclamation point.

Criterion: 80% accuracy.

Outcome: The student will correctly name punctuation marks.

Context: Five printed sentences containing at least two of each of the following punctuation marks: period, question mark, quotation marks, comma, exclamation point.

Criterion: 80% accuracy.

Outcome: The student will write appropriate punctuation marks.

Context: Ten unpunctuated printed sentences which require at least three of each of the following punctuation marks: period, comma, question mark, quotation marks, exclamation points.

Criterion: 80% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

See Appendix.

The following commercially prepared materials may also be found to be suitable as resources:
Rules of Punctuation Cassettes — Ideal.
Everyday Language Skills Set — Instructor.

SAMPLE TEST ITEMS

Given a list of ten printed sentences which contain at least three of each of the following punctuation marks — period, question mark, quotation marks, comma, exclamation point — the student will circle the punctuation marks.

Given five printed sentences containing at least two of each of the following punctuation marks — period, question mark, comma, quotation marks, exclamation point — the student will correctly name each punctuation mark.

Given ten unpunctuated printed sentences which require at least three of each of the following punctuation marks — period, comma, question mark, quotation marks, exclamation point — the student will write in the appropriate punctuation marks.

3.0 COMPETENCY Reading — Linguistics

3.3 MODULE CLUSTER Parts of Speech

3.31 MODULE Nouns

PURPOSE To provide the student with the skills for identification and classification of nouns.

BEHAVIORAL OBJECTIVES

Outcome: The student will circle those words which are nouns.

Context: A printed list of fifteen words, ten of which are nouns, including names of persons, places and things.

Criterion: 90% accuracy.

Outcome: The student will circle those words which are nouns.

Context: A printed list of ten noun-verb clauses.

Criterion: 90% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

See Appendix.

The following commercially prepared materials may also be found to be suitable as resources:
Word Function and Sentence Pattern Charts — Ideal.
Sight Phrase Cards — Garrard.
Word and Phrase Sentence Builder — Instruction Materials.
Everyday Language Skills Set — Instructor.

SAMPLE TEST ITEMS

Given a printed list of fifteen words, ten of which are nouns, including names of persons, places and things, the student will circle those words which are nouns.

Given a printed list of ten noun-verb clauses, the student will circle those which are nouns.

3.0 COMPETENCY Reading — Linguistics

3.3 MODULE CLUSTER Parts of Speech

3.32 MODULE Pronouns

PURPOSE To provide the student with the skills for identification of pronouns.

BEHAVIORAL OBJECTIVES

Outcome: The student will circle those words which are pronouns.

Context: A printed list of fifteen words, ten of which are pronouns.

Criterion: 80% accuracy.

Outcome: The student will circle those words which are pronouns.

Context: A printed list of ten pronoun-verb clauses.

Criterion: 80% accuracy.

Outcome: The student will write a pronoun which correctly replaces a noun or group of nouns.

Context: A list of ten printed sentences, underlining the noun or nouns to be replaced.

Criterion: 80% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

See Appendix.

The following commercially prepared materials may also be found to be suitable as resources:
Sight Phrase Cards — Garrard.
Word and Phrase Sentence Builder — Instructional Materials.
Word Function and Sentence Pattern charts — Ideal.
Everyday Language Skills Set — Instructor.

SAMPLE TEST ITEMS

Given a printed list of fifteen words, ten of which are pronouns, the student will circle those words which are pronouns.

Given a printed list of ten pronoun-verb clauses, the student will circle those words which are pronouns.

Given a list of ten printed sentences, underlining the noun or nouns to be replaced, the student will write a pronoun which correctly replaces the noun or group of nouns.

3.0 COMPETENCY Reading — Linguistics

3.3 MODULE CLUSTER Parts of Speech

3.33 MODULE Verbs

PURPOSE To provide the student with the skills for identification and rule application regarding verbs.

BEHAVIORAL OBJECTIVES

Outcome: The student will circle those words which are verbs.

Context: A printed list of fifteen words, ten of which are verbs.

Criterion: 80% accuracy.

Outcome: The student will circle those words which are verbs.

Context: A printed list of ten noun-verb and/or pronoun-verb clauses.

Criterion: 80% accuracy.

Outcome: The student will write a verb which agrees in number with a noun or nouns.

Context: A printed list of ten nouns, pronouns, and/or noun-pronoun phrases, five of which are singular and five of which are plural.

Criterion: 80% accuracy.

Outcome: The student will write verbs in the past tense.

Context: A printed list of ten noun-verb and/or pronoun-verb clauses, each in the present tense.

Criterion: 80% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

See Appendix.

The following commercially prepared materials may also be found to be suitable as resources:
Word Function and Sentence Pattern charts — Ideal.
Sight Phrase Cards — Garrard.
Word and Phrase Sentence Builder — Instructional Materials.
Everyday Language Skills Set — Instructor.
Read and Say Verb Game — Dolch.

SAMPLE TEST ITEMS

Given a printed list of fifteen words, ten of which are verbs, the student will circle those words which are verbs.

Given a printed list of ten noun-verb and/or pronoun-verb clauses, the student will circle those words which are verbs.

Given a list of ten nouns, pronouns, and/or noun-pronoun phrases, five of which are singular and five of which are plural, the student will write verbs which agree in number with the nouns, pronouns, and noun-pronoun phrases.

Given a printed list of ten noun-verb and/or pronoun-verb clauses, each in the present tense, the student will write the verbs in the past tense.

3.0 COMPETENCY Reading — Linguistics

3.3 MODULE CLUSTER Parts of Speech

3.34 MODULE Adjectives

PURPOSE To provide the student with the skills for identification and rule application regarding adjectives.

BEHAVIORAL OBJECTIVES

Outcome: The student will circle those words which are adjectives.

Context: A printed list of fifteen words, ten of which are adjectives.

Criterion: 80% accuracy.

Outcome: The student will circle those words which are adjectives.

Context: A printed list of ten noun-verb-adjective clauses and/or adjective-noun phrases.

Criterion: 80% accuracy.

Outcome: The student will write an adjective which modifies a noun.

Context: A printed list of ten sentences, each containing at least a noun, a verb, and a blank which indicates where the adjective is to be written.

Criterion: 80% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

See Appendix.

The following commercially prepared materials may also be found to be suitable as resources:
Word Function and Sentence Pattern Charts — Ideal.
Sight Phrase Cards — Garrard.
Word and Phrase Sentence Builder — Instructional Materials.
Everyday Language Skills Set — Instructor.

SAMPLE TEST ITEMS

Given a printed list of fifteen words, ten of which are adjectives, the student will circle those words which are adjectives.

Given a printed list of ten noun-verb-adjective clauses and/or adjective-noun phrases, the student will circle those words which are adjectives.

Given a printed list of ten sentences, each containing at least a noun, verb and a blank which indicates where the adjective is to be written, the student will write an adjective which modifies the noun.

3.0 COMPETENCY Reading — Linguistics

3.3 MODULE CLUSTER Parts of Speech

3.35 MODULE Adverbs

PURPOSE To provide the student with the skills for identification and rule application regarding adverbs.

BEHAVIORAL OBJECTIVES

Outcome: The student will circle those words which are adverbs.

Context: A printed list of fifteen words, ten of which are adverbs.

Criterion: 80% accuracy.

Outcome: The student will circle those words which are adverbs.

Context: A printed list of ten noun-verb-adverb and/or adverb-noun-verb clauses.

Criterion: 80% accuracy.

Outcome: The student will write an adverb which correctly modifies a verb.

Context: A printed list of ten sentences, each containing at least a noun, a verb, and a blank which indicates where the adverb is to be written.

Criterion: 80% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

See Appendix.

The following commercially prepared materials may also be found to be suitable as resources:
Word Function and Sentence Pattern charts — Ideal.
Sight Phrase Cards — Garrard.
Word and Phrase Sentence Builder — Instructional Materials.
Everyday Language Skills Set — Instructor.

SAMPLE TEST ITEMS

Given a printed list of fifteen words, ten of which are adverbs, the student will circle those words which are adverbs.

Given a printed list of ten noun-verb-adverb and/or adverb-noun-verb clauses, the student will circle those words which are adverbs.

Given a printed list of ten sentences, each containing at least a noun, a verb and a blank which indicates where the adverb is to be written, the student will write an adverb which correctly modifies the verb.

3.0 COMPETENCY Reading — Linguistics

3.3 MODULE CLUSTER Parts of Speech

3.36 MODULE Prepositions

PURPOSE To provide the student with the skills for identification and rule application regarding prepositions.

BEHAVIORAL OBJECTIVES

Outcome: The student will circle those words which are prepositions.

Context: A printed list of ten words, five of which are prepositions.

Criterion: 80% accuracy in the context.

Outcome: The student will circle those words which are prepositions.

Context: A printed list of ten prepositional phrases.

Criterion: 80% accuracy.

Outcome: The student will write meaningful prepositional phrases.

Context: A printed list of ten sentences each containing a blank which indicates an omitted phrase.

Criterion: 80% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

See Appendix for examples.

Cohen. *Teach them all to read.*

Heilman. *Phonics in proper perspective.*

Heilman. *Teaching reading.*

Stanwix. *Developing functional basic reading skills.*

Stanwix series readers.

Spice. *Suggested activities to motivate the teaching of language arts.*

The following commercially prepared material may also be found suitable as resources:
Word Building Charts — Ideal.
Spelling Generalization Charts — Ideal.
Everyday Language Skills Set — Instructor.

SAMPLE TEST ITEMS

Given a printed list of ten words, five of which are prepositions, the student will circle those words which are prepositions.

Given a printed list of ten prepositional phrases, the student will circle those words which are prepositions.

Given a printed list of ten sentences, each containing a blank which indicates an omitted phrase, the student will write meaningful prepositional phrases.

3.0 COMPETENCY Reading — Linguistics

3.3 MODULE CLUSTER Parts of Speech

3.37 MODULE Articles and/or Specific Determiners

PURPOSE To provide the student with the skills for identification and rule application regarding articles or specific determiners.

BEHAVIORAL OBJECTIVES

Outcome: The student will circle those words which are articles.

Context: A printed list of ten words, including the articles "a," "an," "the."

Criterion: 80% accuracy.

Outcome: The student will circle those words which are articles.

Context: A printed list of ten phrases, both article-noun and an adjective-noun.

Criterion: 80% accuracy.

Outcome: The student will write an article which modifies a noun.

Context: A printed list of ten nouns, five of which begin with a vowel and/ or "h"* and five of which begin with a consonant, and the articles "a" and "an."

Criterion: 80% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

See Appendix for examples.

Cohen. *Teach them all to read.*

Heilman. *Phonics in proper perspective.*

Heilman. *Teaching reading.*

Stanwix. *Developing functional basic reading skills.*

Stanwix series readers.

Spice. *Suggested activities to motivate the teaching of the language arts.*

The following commercially prepared material may also be found suitable as resources:
Word Building Charts — Ideal.
Spelling Generalization charts — Ideal.
Everyday Language Skills Set — Instructor.

SAMPLE TEST ITEMS

Given a printed list of ten words, including the articles a, an, and the, the student will circle those words which are articles.

Given a printed list of ten phrases, both article-noun and adjective-noun phrases, the student will circle those words which are articles.

Given a printed list of ten nouns, five of which begin with a vowel and/or h* and five of which begin with a consonant the student will write the article, choosing between the alternatives "a" and "an" which correctly modifies the noun.

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*Irregular silent "H" rule, i.e., an hour, a house, an herb

4.0 COMPETENCY Reading — Comprehension

4.1 MODULE CLUSTER Phonetics — Linguistics

4.11 MODULE Word Attack Skills

PURPOSE To provide the student with the skills for word attack skills.

BEHAVIORAL OBJECTIVE

Outcome: The student will pronounce words correctly.

Context: A printed list of twenty words, none of which are in the student's sight vocabulary.

Criterion: Clinical Teacher judgement.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Ferinden. *Educational interpretation of the ITPA*, sound blending subtest.

Dolch sight vocabulary words.

Durrell. *Reading games*.

The following commercially prepared material may also be found suitable as resources:
Crossover — Lyons.

SAMPLE TEST ITEM

Given the printed list of twenty words, none of which are in the student's sight vocabulary, the student will pronounce words correctly.

4.0 COMPETENCY Reading — Comprehension

4.1 MODULE CLUSTER Phonetics — Linguistics

4.12 MODULE Reading a One-syllable Word with Comprehension

PURPOSE To provide the student with the skills for reading a one-syllable word with comprehension.

BEHAVIORAL OBJECTIVE

Outcome: The student will read and define a one-syllable word.

Context: A series of twenty one-syllable words, presented on flash cards, each of which is already in the student's spoken vocabulary.

Criterion: Clinical Teacher judgement.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Dolch sight vocabulary words.

Crossover — Lyons.

Durrell. *Reading games.*

Stanwix series.

Basal readers.

Barnell-Loft. *Using context:* Levels A and up.

SAMPLE TEST ITEM

Given a series of twenty one-syllable words, presented on flash cards, each of which is already in the student's spoken vocabulary, the student will read and define the meaning of a one-syllable word.

4.0 COMPETENCY Reading — Comprehension

4.2 MODULE CLUSTER Word Meaning

4.21 MODULE Contextual Clues

PURPOSE To provide the student with the skills for obtaining word meaning by contextual clues.

BEHAVIORAL OBJECTIVES

Outcome: The student will define an unfamiliar word.

Context: A list of ten printed sentences each containing an unfamiliar word which is underlined.

Criterion: Clinical Teacher judgement.

Outcome: The student will write a word according to the presented context.

Context: A list of ten printed sentences each containing a blank which indicates an omitted word.

Criterion: Clinical Teacher judgement.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Basal readers.

Barnell Loft. *Using context:* Levels A and up.

Dolch puzzle books: Levels 1 and 2.

Stanwix series.

Durrell. *Reading games.*

The following commercially prepared materials may also be found suitable as resources:
Classification Opposites Sequence Transparencies — Ideal.
Word Functions and Sentence Pattern Charts — Ideal.
Antonym Poster Cards — Milton Bradley.
Synonym Poster Cards — Milton Bradley.
Everyday Language Skills Set — Instructor.

SAMPLE TEST ITEMS

Given a list of ten printed sentences, each containing an unfamiliar word which is underlined, the student will define the meaning of the unfamiliar word according to its context.

Given a list of ten printed sentences, each containing a blank which indicates an omitted word, the student will write in a meaningful word according to the presented context.

4.0 COMPETENCY Reading — Comprehension

4.2 MODULE CLUSTER Word Meaning

4.22 MODULE Use of Dictionary

PURPOSE To provide the student with the skills for obtaining word meaning from a dictionary. (Prerequisite skill: The student must be competent in use of a dictionary.)

BEHAVIORAL OBJECTIVE

Outcome: The student will define a word after finding it in a dictionary.

Context: A list of five unfamiliar words and a dictionary.

Criterion: Clinical Teacher judgement.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Thesaurus.

Any dictionary and/or picture dictionary.

Basal readers.

SAMPLE TEST ITEM

Given a list of five unfamiliar words and a dictionary, the student will define a word after finding it in the dictionary.

4.0 COMPETENCY Reading — Comprehension

4.2 MODULE CLUSTER Word Meaning

4.23 MODULE Synonyms & Antonyms

PURPOSE To provide the student with the skills for associating words with their synonyms and antonyms.

BEHAVIORAL OBJECTIVES

Outcome: The student will verbally provide the synonyms of words.

Context: A list of ten familiar words presented orally and/or visually.

Criterion: Clinical Teacher judgement.

Outcome: The student will verbally provide the antonyms of words.

Context: A list of ten familiar words presented orally and/or visually.

Criterion: Clinical Teacher judgement.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

See Appendix.

The following commercially prepared materials may also be found to be suitable as resources:
Classification Opposites Sequence Transparencies — Ideal.
Word Functions and Sentence Pattern charts — Ideal.
Antonym Poster Cards — Milton Bradley.
Synonym Poster Cards — Milton Bradley.
Everyday Language Skills Set — Instructor.

SAMPLE TEST ITEMS

Given a list of ten familiar words presented orally and/or visually, the student will verbally provide the synonyms of the words presented.

Given a list of ten familiar words presented orally and/or visually, the student will verbally provide the antonyms of the words presented.

4.0 COMPETENCY Reading — Comprehension

4.3 MODULE CLUSTER Phrase Meaning

4.31 MODULE Contextual Clues

PURPOSE To provide the students with the skills for obtaining phrase meaning by contextual clues.

BEHAVIORAL OBJECTIVES

Outcome: The student will verbally explain the meaning of a phrase.

Context: Five printed sentences each containing an underlined phrase.

Criterion: 80% accuracy.

Outcome: The student will write in a meaningful phrase according to the presented context.

Context: Five printed sentences each containing a blank which indicates an omitted phrase.

Criterion: 80% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

See Appendix.

Stanwix series.

Barnell-Loft. *Using context.*

SRA Reading Kit.

Conquest in reading series.

The following commercially prepared materials may also be found to be suitable as resources:
Sight Phrase Cards — Dolch.
Word and Phrase Sentence Builder — Instructional Materials.

SAMPLE TEST ITEMS

Given five printed sentences each containing an underlined phrase, the student will verbally explain the meaning of the phrase.

Given five printed sentences each containing a blank which indicates an omitted phrase, the student will write in a meaningful phrase according to the presented context.

4.0 COMPETENCY Reading — Comprehension

4.4 MODULE CLUSTER Syntax

4.41 MODULE Syntax

PURPOSE To provide the student with the skills for syntax usage.

BEHAVIORAL OBJECTIVE

Outcome: The student will reorder a group of words and write a syntactically correct sentence.

Context: A printed list of ten groups of randomly arranged words, each group containing an adjective, noun, article, verb, and adverb.

Criterion: 80% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

See Appendix.

Harcourt, Brace & Jovanovich. *Roberts English* series.

American Books. *Our language today* series.

New directions in English.

SAMPLE TEST ITEM

Given printed series of ten groups of randomly arranged words, each group containing an adjective, noun, article, verb, and adverb, the student will reorder the group of words and write a syntactically correct sentence.

4.0 COMPETENCY Reading — Comprehension

4.5 MODULE CLUSTER Sentence Meaning

4.51 MODULE Sentence Meaning

PURPOSE To provide the student with the skills for obtaining sentence meaning.

BEHAVIORAL OBJECTIVES

Outcome: The student will verbally explain the meaning of a sentence.

Context: A printed list of five sentences.

Criterion: Clinical Teacher judgement.

Outcome: The student will write answers to questions.

Context: A printed list of five sentences, each followed by a literal question.

Criterion: Clinical Teacher judgement.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

See Appendix.

SRA Reading Kit.

Barnell-Loft. *Reading for context.*

Merrill. *Diagnostic reading workbooks.*

Merrill linguistic readers. *Skilltext* series.

SAMPLE TEST ITEMS

Given a printed list of five sentences, the student will verbally explain the meaning of the sentences.

Given a printed list of five sentences, each followed by a literal question, the student will write meaningful answers to the questions.

4.0 COMPETENCY Reading — Comprehension

4.5 MODULE CLUSTER Sentence Meaning

4.52 MODULE Following Written Directions

PURPOSE To provide the student with the skills for following written directions.

BEHAVIORAL OBJECTIVE

Outcome: The student will perform the action required by a written direction.

Context: Written directions, e.g., prescription sheets, work sheets, personal notes.

Criterion: Clinical Teacher judgement.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

See Appendix for examples.

Barnell-Loft. *Following directions.*

Conquest in reading series.

Steck-Vaugh. *Reading essentials* series.

Merrill. *Diagnostic reading workbooks.*

Merrill. *Three-in-one workbooks.*

Merrill. *Reading skilltext* series.

SRA Reading Kits.

SAMPLE TEST ITEM

Given a set of written directions the student will perform the action required.

4.0 COMPETENCY Reading — Comprehension

4.6 MODULE CLUSTER Paragraph Meaning

4.61 MODULE Appropriateness of Context in Sentence Construction

PURPOSE To provide the student with the skills for writing meaningful, congruent sentences in relation to context.

BEHAVIORAL OBJECTIVES

Outcome: The student will write a sentence which meaningfully precedes another sentence.

Context: A printed list of five discrete sentences.

Criterion: Clinical Teacher judgement.

Outcome: The student will write a sentence which meaningfully follows another sentence.

Context: A printed list of five discrete sentences.

Criterion: Clinical Teacher judgement.

Outcome: The student will write a sentence which fits meaningfully into a paragraph.

Context: Three printed paragraphs, each having one sentence omitted from the body of the paragraph.

Criterion: Clinical Teacher judgement.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Lippincott. *Reading for meaning.*

Schmitt. *Something new to do.*

Barnell-Loft. *Reading for context.*

Merrill. *Reading skilltext* series.

Merrill. *Diagnostic reading workbooks.*

High interest-low vocabulary books.

SRA Reading Kits.

Dolch readers.

SAMPLE TEST ITEMS

Given a printed list of five discrete sentences, the student will write a sentence which meaningfully precedes another sentence.

Given a printed list of five discrete sentences, the student will write a sentence which meaningfully follows another sentence.

Given three printed paragraphs, each having one sentence omitted from the body of the paragraph, the student will write a sentence which meaningfully completes the paragraph.

4.0 COMPETENCY Reading — Comprehension

4.6 MODULE CLUSTER Paragraph Meaning

4.62 MODULE Paragraph Meaning

PURPOSE To provide the student with the skills for obtaining the meaning of paragraphs.

BEHAVIORAL OBJECTIVES

Outcome: The student will verbally explain the meaning of a paragraph.

Context: A series of three printed paragraphs, each containing at least five sentences.

Criterion: Clinical Teacher judgement.

Outcome: The student will write meaningful answers to literal questions about a paragraph.

Context: A series of three printed paragraphs, each containing at least five sentences; followed by literal questions as to who, what, where and when.

Criterion: Clinical Teacher judgement.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Lippincott. *Reading for meaning.*

Schmitt. *Something new to do.*

Barnell-Loft. *Reading for context.*

Merrill. *Reading skilltext* series.

Merrill. *Diagnostic reading workbooks.*

High interest-low vocabulary books.

SRA Reading Kit

Dolch readers.

SAMPLE TEST ITEMS

Given a series of three printed paragraphs, each containing at least five sentences, the student will verbally explain the meaning of a paragraph.

Given a series of three printed paragraphs, each containing at least five sentences, followed by literal questions as to who, what, where and when; the student will write meaningful answers to literal questions about the paragraph.

4.0 COMPETENCY Reading — Comprehension

4.6 MODULE CLUSTER Paragraph Meaning

4.63 MODULE Main Idea of Paragraph

PURPOSE To provide the student with the skills for identifying the main idea of a paragraph or short narration.

BEHAVIORAL OBJECTIVES

Outcome: The student will circle the item number of the statement which best represents the main idea of a paragraph.

Context: A series of three printed paragraphs, each containing at least five sentences; each followed by a list of three numbered statements about the paragraph, one of which is the main idea.

Criterion: Clinical Teacher judgement.

Outcome: The student will state the main idea of a paragraph.

Context: A series of three printed paragraphs, each containing at least five sentences.

Criterion: Clinical Teacher judgement.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Dolch readers.

Barnell-Loft. *Reading for context.*

SRA Reading Kit.

Lippincott. *Reading for meaning.*

Merrill. *Reading skilltext* series.

Merrill. *Diagnostic reading workbooks.*

High interest-low vocabulary books such as *Cowboy Sam, Stanwix* series, *Checkered flag* series.

SAMPLE TEST ITEMS

Given a series of three printed paragraphs, each containing at least five sentences; each followed by a list of three numbered statements about the paragraph, one of which is the main idea, the student will circle the item numbers of the statements which best represent the main ideas of the paragraphs.

Given a series of three printed paragraphs, each containing at least five sentences, the student will state the main idea of each paragraph.

4.0 COMPETENCY Reading — Comprehension

4.6 MODULE CLUSTER Paragraph Meaning

4.64 MODULE Logical Order of Ideas in a Paragraph (Sequencing)

PURPOSE To provide the student with the skills for determining the logical order of ideas in a paragraph or short narration.

BEHAVIORAL OBJECTIVES

Outcome: The student will write a series of ideas in logical order.

Context: Three series of four printed statements, randomly ordered, which may be placed in a logical order.

Criterion: Clinical Teacher judgement.

Outcome: The student will verbally recall the logical order of ideas in a paragraph.

Context: A printed series of three paragraphs, each containing at least five sentences.

Criterion: Clinical Teacher judgement.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Barnell-Loft. *Reading for context.*

Merrill. *Reading skilltext* series.

Merrill. *Diagnostic reading workbooks.*

Steck-Vaugh. *Reading essentials* series.

SRA Reading Kit.

Dolch readers.

High interest-low vocabulary books such as *Cowboy Sam*, *Checkered flag* series, *Stanwix* series.

SAMPLE TEST ITEMS

Given three series of four printed statements, randomly ordered, the student will write the series of ideas in logical order.

Given a printed series of three paragraphs, each containing at least five sentences, the student will verbally recall the logical order of the ideas which were presented in each paragraph.

4.0 COMPETENCY Reading — Comprehension

4.6 MODULE CLUSTER Paragraph Meaning

4.65 MODULE Critical Evaluation

PURPOSE To provide the student with the skills for critically evaluating a written passage.

BEHAVIORAL OBJECTIVES

Outcome: The student will state whether statements are fact or opinion.

Context: Five printed statements, in or out of context.

Criterion: Clinical Teacher judgement.

Outcome: The student will state whether he liked reading a passage, and why.

Context: A printed passage of at least five sentences.

Criterion: Clinical Teacher judgement.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Aesop's fables.

Dolch readers.

Webster. *New Practice Readers.*

Steck. *Progress in Reading.*

High interest-low vocabulary books such as *Jim Forest* readers, *Stanwix* series, *Checkered flag* series.

SAMPLE TEST ITEMS

Given five printed statements, in or out of context, the student will verbalize and/or write whether the statements are fact or opinion.

Given a printed passage of at least five sentences, the student will verbalize and/or write whether he liked reading the passage, and why.

4.0 COMPETENCY Reading — Comprehension

4.6 MODULE CLUSTER Paragraph Meaning

4.66 MODULE Inferences

PURPOSE To provide the student with the skills for drawing inferences from a printed passage.

BEHAVIORAL OBJECTIVES

Outcome: The student will draw an inference from a written passage. (details)

Context: A printed passage of at least three sentences from which inferences may be drawn (or detail).

Criterion: Clinical Teacher judgement.

Outcome: The student will complete a story, either verbally or in writing.

Context: A printed passage, or at least five sentences with an open-ended last sentence.

Criterion: Clinical Teacher judgement.

Outcome: The student will anticipate, either verbally or in writing, what will happen next in a story or in current events.

Context: A printed passage of at least five sentences describing a continuing activity or event.

Criterion: Clinical Teacher judgement.

Outcome: The student will draw conclusions (cause and effects, generalizations, morals), either verbally or in writing from information given.

Context: A printed passage of at least five sentences from which conclusions may be drawn.

Criterion: Clinical Teacher judgement.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Webster. *New Practice Reader.*

Aesop's fables.

Dolch readers.

Jim Forest series.

Checkered flag series.

Reader's Digest reading skill builders.

SAMPLE TEST ITEMS

Given a printed passage of at least five sentences, from which inferences or detail may be drawn the student will correctly respond to questions requiring the student to draw inferences from the passage.

Given a printed passage, of at least five sentences, with an open ended last sentence, the student will complete the passage either verbally, or in writing.

Given a printed passage, of at least five sentences, describing a continuing activity and/or event, the student will anticipate either verbally or in writing what will happen next.

Given a printed passage, of at least five sentences, from which conclusions may be drawn, the student will draw a conclusion either verbally or in writing from the information given.

CLUSTER COMPETENCY TESTS

CLUSTER COMPETENCY TEST 1.1

AUDITORY DISCRIMINATION

MODULE 1.2, Rhyming

Instructions: "Tell me a pair of words that rhymes. For example, cat/hat or lark/bark."

MODULE 1.15, Final Consonant Discrimination

Instructions: "I am going to say some words, and I want you to tell me if the *LAST* letters in the words sound the same or different."

1. mountain — balloon
2. goat — stuff
3. plot — scout
4. bid — fog
5. quack — kick
6. dinner — saucer
7. trip — pup
8. tab — dad
9. wagon — light
10. toad — buzz

MODULE 1.17, Medial Vowel Discrimination

Instructions: "I am going to say some words, and I want you to tell me if the *MIDDLE* sound in the words are the same or different."

1. stop — rock
2. hope — tone
3. cat — leg
4. get — gift
5. hive — like
6. hut — map
7. list — lift
8. came — cake
9. pan — dig
10. let — pig

MODULE 1.191, Final Consonant Blends

Instructions: "I am going to say some words, and I want you to tell me if the *ENDINGS* in the words sound the same or different."

1. toast — feast
2. bring — tang
3. kept — lisp
4. crisp — clasp
5. stand — chant
6. stamp — pong
7. field — held
8. lift — loft
9. rant — train
10. camp — cast

CLUSTER COMPETENCY TEST 1.2

AUDITORY MEMORY

MODULE 1.24, Auditory Memory of Letters

Instructions: "I want to see if you can remember some letters. I will say some letters, then I will read a sentence to you, and then I will ask you to tell me the letters."

1. D, B, G, F When they entered the zoo, the lion roared.
2. Z, L, V, P Tom took his little sister to the park.
3. M, S, Q, C Bill has a blue parrot that talks.

CLUSTER COMPETENCY TEST 1.3

AUDITORY SEQUENTIAL MEMORY

MODULE 1.34, Auditory Sequential Memory of Letters

Instructions: "I am going to say some letters, then I want you to say them back to me in the same order."

1. D, O, R, K
2. P, D, A, X
3. W, U, O, L

CLUSTER COMPETENCY TEST 1.4

AUDITORY COMPREHENSION

MODULE 1.41, Auditory Comprehension — Literal

Instructions: "I want you to do three things."

1. Bring me your workbook, sharpen your pencil, and come sit down.
2. Wash your hands, find page ten in your workbook, and raise your hand when you have found it.
3. Take this note to the office, ask the secretary to sign it, and bring it back to my desk.

Instructions: "I am going to read a story to you, and after I am finished I am going to ask you to tell me five things that happened in the story."

A story, such as a fairy tale, which is not familiar to the student.

CLUSTER COMPETENCY TEST 1.5

VISUAL DISCRIMINATION

MODULE 1.55, Visual Discrimination of Letters

Instructions: "Here are four letters. Point to the one which is different."

1. bdbb
2. mmnm
3. ccco
4. zxzz
5. qppp

CLUSTER COMPETENCY TEST 1.6

VISUAL MEMORY OF LETTERS

MODULE 1.64, Visual Memory of Letters

Instructions: "I am going to show you a letter, then I'll take it away. Next I will show you a group of four letters, and want you to point to the one you saw before."

1. *B* B K R O
2. *L* S U L P
3. *K* V A K Q
4. *T* H T C F
5. *W* M G V W

CLUSTER COMPETENCY TEST 1.7

VISUAL SEQUENTIAL MEMORY

MODULE 1.74, Visual Sequential Memory of Letters

Instructions: "I am going to show you some letters. Look at them carefully. Then I am going to mix them up, and I want you to put them back the way they were before."

1. B D P
2. O Q C
3. M L R
4. R B P
5. Z T F

CLUSTER COMPETENCY TEST 1.8

LETTER KNOWLEDGE

MODULE 1.83, Identification

Instructions: "I am going to show you some letters. Tell me what they are."

B I Z p K c h R S I o w A J t g

MODULE 1.84, Recall and Reproduction

Instructions: "I am going to say some letters, and I want you to print them for me." (Either upper or lower case letters are acceptable.)

E K U Z A L D H O R W B F C G I

CLUSTER COMPETENCY TEST 2.1

CONSONANTS

MODULE 2.13, Final Consonants

Instructions: "I am going to say some words, and I want you to tell me what *SOUND* they end with."

1. balloon
2. goat
3. toad
4. flap
5. foam
6. tab
7. miss
8. fog
9. stuff
10. roll

Instructions: "I am going to say some words, and I want you to tell me what *LETTER* they end with."

1. four
2. buzz
3. look
4. happen
5. steal
6. rid
7. trip
8. nab
9. plot
10. calf

MODULE 2.17, Final Consonant Blends

Instructions: "I am going to say some words, and I want you to tell me what *blend sound* they end with."

1. toast
2. kept
3. bring
4. stand
5. stamp
6. rant
7. lift
8. risk
9. lisp
10. field

Instructions: "I am going to say some words, and I want you to tell me what *blend* they end with."

1. clasp
2. loft
3. task
4. held
5. chant
6. slept
7. sling
8. camp
9. pond
10. feast

MODULE 2.191, Final Consonant Digraphs

Instructions: "I am going to say some words, and I want you to tell me what *SOUND* they end with."

1. church
2. with
3. hush
4. touch
5. eighth
6. wish
7. myth
8. crunch
9. crush
10. smith

Instructions: "I am going to say some words, and I want you to tell me what *DIGRAPH* they end with."

1. munch
2. swish
3. mush
4. witch
5. ninth
6. bunch
7. froth
8. sabbath
9. lunch
10. crash

CLUSTER COMPETENCY TEST 2.2

VOWELS

MODULE 2.22, Medial Vowels

Instructions: "I am going to say some words, and I want you to tell me the single vowel *SOUND* you hear in the middle of each word."

1. cat
2. get
3. list
4. stop
5. putt
6. came
7. need
8. hive
9. hope
10. flute

Instructions: "I am going to say some words, and I want you to tell me what *VOWEL* is in the middle of each word."

1. map
2. leg
3. gift
4. rock
5. cup
6. cake
7. keep
8. like
9. tone
10. cute

MODULE 2.33, Vowel Digraphs

Instructions: "I am going to say some words, and I want you to tell me the vowel digraph *SOUND* you hear in the middle of each word."

1. seed
2. gray
3. plain
4. coat
5. foe
6. food
7. leaf
8. hook
9. cease
10. jail

Instructions: "I am going to say some words, and I want you to tell me what *DIGRAPH* is in the middle of each word."

1. say
2. rail
3. peach
4. goose
5. wood
6. leaf
7. need
8. plain
9. boat
10. toe

MODULE 2.24, Vowel Diphthongs

Instructions: "I am going to say some words, and I want you to tell me what vowel diphthong *SOUND* you hear."

1. boy
2. join
3. house
4. boil
5. cow
6. mouse
7. employ
8. soil
9. toy
10. now

Instructions: "I am going to say some words, and I want you to tell me which *DIPHTHONG* you hear."

1. coin
2. soil
3. sound
4. brow
5. deploy
6. mouse
7. how
8. destroy
9. toil
10. gown

CLUSTER COMPETENCY TEST 3.1

WORD FORM

MODULE 3.12, Compound Words

Instructions: "Here is a list of compound words. I want you to separate them into their root words." (Separate: write the root words, circle the root words, or draw a line between the root words)

1. airplane
2. cowboy
3. mailman
4. sunflower
5. something

MODULE 3.13, Plurals

Instructions: "Here is a list of words. I want you to write the plurals."

1. hat
2. dress
3. pony
4. leaf
5. finger
6. box
7. lady
8. shelf
9. child
10. girl
11. fox
12. goose
13. deer
14. foot
15. man

MODULE 3.14, Prefixes

Instructions: "I want you to write meaningful words by combining the following lists of prefixes and root words."

1. dis	take
2. in	view
3. re	happy
4. un	ward
5. ad	figure
6. be	claim
7. ex	side
8. for	prepared
9. mis	run
10. pre	join

MODULE 3.15, Suffixes

Instructions: "I want you to write meaningful words by combining the following lists of suffixes and root words."

1. er	hope
2. ly	command
3. ed	report
4. ing	happy
5. ful	map
6. ition	year
7. ling	part
8. some	add
9. ment	hand
10. ness	shrewd

MODULE 3.16, Contractions

Instructions: "Using this list of expressions, I want you to write the contractions and then say them for me."

1. do not
2. I have
3. I will
4. you are
5. it is

MODULE 3.17, Possessives

Instructions: "Here is a list of nouns. I want you to write their possessives."

1. child
2. Charles
3. children
4. George
5. boss
6. oxen
7. girl
8. books
9. mice
10. duck

MODULE 3.18, Syllabication

Instructions: "Here is a list of words. I want you to divide them into their syllables."

1. vegetable
2. marshmallow
3. elderberry
4. consonant
5. beautiful
6. carpenter
7. important
8. cucumber
9. bicycle
10. yesterday

Instructions: "Listen to these sounds and tell me what word they make."

1. mid-dle
2. ap-ple
3. in-for-ma-tion
4. ex-am-ple
5. in-ter-view
6. par-a-graph
7. ar-ti-cle
8. ti-ger
9. dic-tion-ar-y
10. com-for-ta-ble

CLUSTER COMPETENCY TEST 3.2

SENTENCES

MODULE 3.21, Capitalization

Instructions: "Here are some sentences which do not have any capital letters. I want you to capitalize the words which need to be capitalized."

1. on wednesday, harry will make a speech at the coliseum.
2. dr. goodbody left for the paris convention.
3. charlie brown is my favorite character in peanuts.
4. flag day is on the fourteenth of june.
5. the book, *rebecca of sunnybrook farm,* was checked out yesterday by mrs. smith.

MODULE 3.22, Punctuation

Instructions: "I want you to punctuate the following sentences."

1. When they entered the zoo the lion roared
2. Baseball football basketball and hockey are well-known team sports
3. Thick gray fog covered the ocean
4. Will you take me to the shore asked David
5. Mary asked are you going to take me to the pool today

CLUSTER COMPETENCY TEST 3.3

PARTS OF SPEECH

MODULE 3.31, Nouns

Instructions: "Circle the words which are nouns."

1. Phillip opened
2. run home
3. boy fell
4. mother yelled
5. street curved
6. Dick wrote
7. pen dropped
8. open door
9. wheel turned
10. fix dinner

MODULE 3.32, Pronouns

Instructions: "Replace the underlined noun with a meaningful pronoun."

1. John rode the bicycle.
2. The girls played in the yard.
3. Alice fell in the rabbit hole.
4. Will you take Jim, Bill, and Joan to the circus?
5. Monkeys, giraffes, and lions live in the zoo.

MODULE 3.33, Verbs

Instructions: "Change these verbs to the past tense."

1. Tom draws
2. Walter wiggles
3. shoes match
4. rabbit hops
5. they drink

Instructions: "Write a verb to agree with these nouns."

1. cats
2. you
3. people
4. father
5. hands
6. tooth
7. men
8. pencil
9. faucets
10. chair

MODULE 3.34, Adjectives

Instructions: "Circle the adjective in these sentences."

1. Tim plays in the sandy area.
2. Books are kept in the school library.
3. Dirty shoes were left on the steps.
4. John is wearing a blue shirt.
5. Jim wanted roller skates for his birthday.

MODULE 3.35, Adverbs

Instructions: "Circle the adverbs in these sentences."

1. The boy was very happy.
2. He was not athletic.
3. Please drive carefully.
4. Dr. Smith always takes a vacation.
5. The bus never arrives on time.

MODULE 3.36, Prepositions

Instructions: "Fill in the blanks with a meaningful prepositional phrase."

1. John tripped__________________.
2. The bonfire appeared__________________.
3. The child rose timidly__________________.
4. The policeman__________________entered the dark store.
5. __________________we would go hungry.

CLUSTER COMPETENCY TEST 4.1

PHONETICS — LINGUISTICS

MODULE 4.11, Word Attack Skills

Instructions: "Pronounce the words in this list."

A list of ten words which are not in the student's sight vocabulary.

MODULE 4.12, Reading a One-Syllable Word with Comprehension

Instructions: "I want you to read these words to me and tell me what they mean."

A list of ten one-syllable words which are in the student's spoken vocabulary.

CLUSTER COMPETENCY TEST 4.2

WORD MEANING

MODULE 4.21, Contextual Clues

Instructions: "I want you to read these sentences and tell me what the underlined words mean as used in the sentences."

A list of five sentences, each having one unfamiliar word which is underlined.

Example: If the student is not familiar with the word "Physician," an appropriate sentence would be:
Johnny was sick, so his mother took him to their physician.

An inappropriate sentence would be:
Mrs. Smith and Johnny went to their physician.

MODULE 4.22, Use of Dictionary

Instructions: "I want you to find these words in the dictionary and write down their definitions."

A list of ten words which are not familiar to the student.

MODULE 4.23, Synonyms and Antonyms

Instructions: "I am going to say a word and I want you to tell me a synonym for it."

1. watch (look)
2. road (street)
3. pants (slacks)
4. little (small)
5. car (automobile)
6. big (large)
7. fast (quick)
8. slice (cut)
9. close (shut)
10. clothes (apparel)

Note: These are suggested synonyms: other synonyms may be acceptable.

Instructions: "I am going to say a word and I want you to tell me an antonym for it."

1. ugly (pretty)
2. good (bad)
3. sick (well)
4. true (false)
5. yes (no)
6. soft (hard)
7. wet (dry)
8. smooth (rough)
9. work (play)
10. long (short)

See Note above.

CLUSTER COMPETENCY TEST 4.3

PHRASE MEANING

MODULE 4.31, Contextual Clues

Instructions: "I want you to read these sentences and tell me what the underlined phrases mean as they are used in the sentences."

1. It was hot at the fair, but we were cool and shaded beneath the canopy.
2. Eric, the leading candidate, will probably win the election.
3. Five hundred men were trapped down in the coal mine.
4. Everyone except Susie was invited to the party.
5. Since it is raining, the picnic was cancelled.

CLUSTER COMPETENCY TEST 4.4

SYNTAX

MODULE 4.41, Syntax

Instructions: "I want you to rearrange these words to make a meaningful sentence."

1. Classroom outside his airplane flew John always the paper.
2. Furnace sneakers Ken's not wet were dry the on put to.
3. Date late for party Al and the dinner very were his.
4. With my I Saturday every go deep-sea father fishing.
5. Noisily children on young played playground the the.

CLUSTER COMPETENCY TEST 4.5

SENTENCE MEANING

MODULE 4.51, Sentence Meaning

Instructions: "I want you to read these sentences. Then I am going to ask you some questions about the sentences, and I want you to answer them."

1. He was furious when Marty took the ball. Why was he furious?
2. Jim drew on his sneakers because he was bored. Why did he draw on his sneakers?
3. We pulled the curtains to keep out the glare from the sun. What did we do?
4. After driving over a glass bottle, the yellow car had a flat tire. Why did the tire go flat?
5. We left early in the morning because we had a long way to go. Why did we leave early in the morning?

MODULE 4.52, Following Written Directions

Instructions: "I want you to read these directions and do what they tell you to do."

Erase the blackboard. Write five sentences on the board telling about your hobby. Tell me when you are done.

CLUSTER COMPETENCY TEST 4.6

PARAGRAPH MEANING

MODULE 4.61, Appropriateness of Context in Sentence Construction

Instructions: "Here is a paragraph with a sentence missing. I want you to write a meaningful sentence to complete the paragraph."

Once upon a time there was a rabbit who was always bragging about how fast he could run. He thought it was funny to strut around the forest asking, "____
____" None of the other animals ever agreed to run him a race. They were surprised when the turtle said, "I will run you a race, Mr. Rabbit."

MODULE 4.62, Paragraph Meaning

Instructions: "I want you to read this paragraph and answer the questions about it."

Once upon a time a goat sat near the side of a road. He was an old, fat goat, and his coat was black as coal. One day the goat saw a green toad go down the road. "I want to hop like a toad," said the fat old goat. "I want to hop down the road."

1. What did the goat look like?
2. How did the goat feel?
3. What did the goat see?
4. What did the goat want to do?

MODULE 4.63, Main Idea of a Paragraph

Instructions: "Read this paragraph and write down the main idea."

Saturday morning we went fishing on Lake Jackson. The boat and motor worked fine. As John reeled in his first cast, he felt a tug, and he pulled back to set the hook. Suddenly, a lunker bass broke the water and created a whirlpool of churning foam. John struggled, but finally boated him. The rest of the day he spent recalling his vivid memories of catching the 15-pound bass.

MODULE 4.64, Logical Order of Ideas in a Paragraph

Instructions: "Read these sentences and write the numbers of the sentences as they would be arranged in a meaningful paragraph."

1. At the park we saw Old Faithful and fed the bears.
2. Summer vacation began in June.
3. We went to Yellowstone National Park, and slept in our new camper.
4. The first thing I did on vacation was camping.

MODULE 4.65, Critical Evaluation

Instructions: "Read these sentences and tell me whether they are fact or opinion."

1. According to the survey, a small percentage of the total population uses dental floss regularly each day.
2. Childhood is the best time of your life.
3. Water is composed of hydrogen and oxygen.
4. Football is everyone's favorite sport.
5. Calcium helps to build strong bones.

MODULE 4.66, Inferences

Instructions: "Read this paragraph, and complete the last sentence meaningfully."

The big day finally arrived. John had been in training for three months in anticipation of winning the gold cup. To John, this cup was all that was important in the world. The race began. John knew he could do it. He was winning by two leaps when suddenly,_____

____.

APPENDIX

MODULE TEST ITEMS

MODULE 1.12, Rhyming

1. Moon — Spoon
2. Cat — Hat
3. Cake — Rake
4. Get — Let
5. House — Mouse
6. Dig — Pig
7. Pan — Can
8. Fill — Spill
9. Star — Car
10. Dog — Log

MODULE 1.17, Medial Vowel Discrimination

1. Cat — Map
2. Game — Cake
3. Get — Leg
4. Need — Keep
5. List — Gift
6. Hive — Like
7. Stop — Rock
8. Hut — Cup
9. Flute — Cute
10. Hope — Tone

MODULE 1.18, Discrimination of Single Consonant Blends

See Appendix, Module 2.15 for list of consonant blends.

MODULE 1.19, Discrimination of Initial Consonant Blends

1. Blend — Black
2. Spoon — Spot
3. Speak — Stop
4. Flood — Club
5. Skip — Skill
6. Ski — Steep
7. Strip — String
8. Squash — Squid
9. Spring — Clash
10. Swift — Spray
11. Twist — Twine
12. Trigger — Thread
13. Break — Bless
14. Smile — Sweet
15. Brunt — Bruise
16. Grin — Groan
17. Proud — Cloud
18. Clasp — Clan
19. Fling — Flash
20. Scan — Scrap

MODULE 1.191, Discrimination of Final Consonant Blends

1. Toast — Feast
2. Kept — Slept
3. Loft — Lent
4. Find — Frisk
5. Park — Pink
6. Bring — Sling
7. Hold — Tank
8. Stand — Pond
9. Stamp — Camp
10. Yield — Crack
11. Rant — Chant
12. Pest — Pint
13. Lift — Loft
14. Cramp — Camp
15. Sing — Bond
16. Lisp — Clasp
17. Hard — Just
18. Sink — Carp
19. Field — Held
20. Apt — Ark

MODULE 2.11, Single Consonants

B, C, D, F, G, H, J, K, L, M, N, P, Q, R, S, T, V, W, X, (Y), Z

MODULE 2.12, Initial Consonants

1. Mountain
2. Range
3. Saucer
4. Queen
5. Kite
6. Wagon
7. Paste
8. Barber
9. Jungle
10. Garden
11. Tiger
12. Never
13. Hamburger
14. Dinner
15. Violin
16. Year
17. Furniture
18. Light
19. Zebra
20. Candle

MODULE 2.13, Final Consonants

1. Balloon
2. Goat
3. Toad
4. Flap
5. Foam
6. Tab
7. Miss
8. Fog
9. Stuff
10. Roll
11. For
12. Buzz
13. Gook
14. Fox
15. Row
16. Tic
17. Hurrah

MODULE 2.14, Medial Consonants

1. Cabbage
2. Spaded
3. Refill
4. Legal
5. Hammer
6. Beneath
7. Pepper
8. Hurry
9. Letter
10. Given
11. Away
12. Missing
13. Follow
14. Wizard
15. Oxen
16. Request
17. Bacon
18. Rehash
19. Adjust
20. Maker

MODULE 2.15, Consonant Blends

Ft, Nt, Sk, Ng, Ld, Rd, Rk, Pt, Nk, Mp, Bl, Cl, Fl, Gl, Pl, Sl, Br, Cr, Dr, Fr, Gr, Pr, Tr, Sc, St, Tw, Sp, Sw, Sn, Sm, Scr, Thr, Nd, Rp, Ck, Ght, Spr, Str, Squ

MODULE 2.16, Initial Consonant Blends

1. Black
2. Flow
3. Glance
4. Plane
5. Slink
6. Break
7. Crash
8. Clinic
9. Drastic
10. Friend
11. Groan
12. Prattle
13. Treat
14. Score
15. Stampede
16. Twig
17. Spur
18. Switch
19. Snow
20. Smell
21. Scream
22. Stride
23. Squiggle
24. Spring
25. Thrust

MODULE 2.17, Final Consonant Blends

1. Heft
2. Faint
3. Risk
4. Gong
5. Hold
6. Ford
7. Park
8. Kept
9. Prank
10. Clump
11. Clasp
12. Pest
13. Hand
14. Carp
15. Check
16. Flight

MODULE 2.18, Consonant Digraphs

Sh, Ch, Wh, Th

MODULE 2.19, Initial Consonant Digraphs

1. Whim
2. Shoe
3. Think
4. Cheese
5. Shiver
6. Wheel
7. Chunk
8. They

MODULE 2.191, Final Consonant Digraphs

1. Wish
2. Which
3. Myth
4. March
5. Both
6. Smash

MODULE 2.21, Single Vowels

A, E, I, O, U

MODULE 2.22, Medial Vowels

1. Map
2. Get
3. Hope
4. Cake
5. Rock
6. Hive
7. Need
8. List
9. Flute
10. Tub

MODULE 2.23, Vowel Digraphs

Vowel digraphs are a pair of vowels together in a syllable, the first of which represents its long sound and the second of which is silent. The digraphs which most consistently follow this generalization are: Ai, Oa, Ee, Ea, Ay. Other common digraphs are: Oo, Oe.

1. Rail
2. Say
3. Peach
4. Feed
5. Coat
6. Foe
7. Food
8. Hook
9. Leaf
10. Plain
11. Cease
12. Each
13. Play
14. Need
15. Jail

MODULE 2.24, Vowel Diphthongs

Oi, Ow, Oy, Ou

1. Boy
2. Join
3. Employ
4. Cow
5. House
6. Coin
7. How
8. Mouse
9. Broil
10. Destroy

MODULE 3.11, Root Words

1. Inside
2. Rerun
3. Undone
4. Redo
5. Beginner
6. Foregone
7. Misplace
8. Semiannually
9. Twilight
10. Pretest

MODULE 3.12, Compound Words

1. Cowboy
2. Mailman
3. Sunflower
4. Something
5. Bedroom
6. Carport
7. Afternoon
8. Woodwork
9. Playtime
10. Homemade

MODULE 3.13, Plurals

1. Hat — Hats
2. Finger — Fingers
3. Leaf — Leaves
4. Pony — Ponies
5. Goat — Goats
6. Fox — Foxes
7. Dress — Dresses
8. Shelf — Shelves
9. Lady — Ladies
10. Boss — Bosses

1. Goose — Geese
2. Mouse — Mice
3. Man — Men
4. Sheep — Sheep
5. Child — Children
6. Deer — Deer
7. Moose — Moose
8. Fish — Fish
9. Ox — Oxen
10. Foot — Feet

MODULE 3.14, Prefixes

Dis, In, Re, Un, Ad, Al, Be, Ex, Fore, Im, Mis, Pre, Ac, En, Extra, Non, Co, De, Em, Inter, Ir, Out, Post, Semi, Two

1. Disfigure
2. Disappear
3. Inside
4. Rerun
5. Unable
6. Inward
7. Undigested
8. Reclaim
9. Unprepared
10. Redo

1. Adjoin
2. Already
3. Beside
4. Exclaim
5. Forward
6. Impart
7. Mistreat
8. Preview
9. Precede
10. Mistake

1. Acquisition
2. Endure
3. Extraordinary
4. Nonsense
5. Nondescript
6. Encase
7. Endoderm
8. Extrasensory
9. Nonconformist
10. Accept

1. Antisocial
2. Cooperate
3. Departure
4. Embark
5. Interrelated
6. Irregular
7. Outside
8. Postscript
9. Semiannual
10. Twofold

MODULE 3.15, Suffixes

Er, Ly, Ed, Est, Ing, En, Ful, Less, Ment, Ness, Or, Y, Able, Ance, Ation, Ence, Ent, Ion, Intion, Ous, Th, Tion, Ure, Ward, Do, Hood, Ian, Ible, Ist, Ling, Sion, Some, Al, An, Ant, Ary, Ee, Ery, Escent, Fy, Ic, Ice, Ician, Ish, Ity, Ive, Let, Ty

1. Reporter
2. Madder
3. Sticker
4. Stopper
5. Smoker
6. Happily
7. Coyly
8. Coarsely
9. Freely
10. Quietly

1. Mapped
2. Lovliest
3. Fading
4. Fatten
5. Joyful
6. Hopeless
7. Payment
8. Shrewdness
9. Operator
10. Sandy

1. Comfortable
2. Importance
3. Association
4. Existence
5. Persistent
6. Invention
7. Recognition
8. Malicious
9. Width
10. Traction
11. Conjecture
12. Homeward

1. Hairdo
2. Statehood
3. Librarian
4. Mandible
5. Pacifist
6. Yearling
7. Decision
8. Wholesome
9. Guardian
10. Handsome

1. Filial
2. American
3. Important
4. Dictionary
5. Employee
6. Stationery
7. Incandescent
8. Fortify
9. Prolific
10. Beautiful
11. Magician
12. Foolish
13. Amity
14. Inventive
15. Couplet
16. Beauty

MODULE 3.16, Contractions

1. Do not — Don't
2. Can not — Can't
3. It is — It's
4. You are — You're
5. I have — I've
6. You will — You'll
7. Would not — Wouldn't
8. Could not — Couldn't
9. I am — I'm
10. They have — They've

MODULE 3.17, Possessives

1. Child — Child's
2. George — George's
3. Man — Man's
4. Girl — Girl's
5. Mary — Mary's
6. Duck — Duck's
7. Group — Group's
8. Pupil — Pupil's
9. Wolf — Wolf's
10. Table — Table's

1. Charles — Charles's
2. James — James's
3. Boss — Boss's
4. Class — Class's
5. Frances — Frances's
6. Books — Books'
7. Joneses — Joneses'
8. Kings — Kings'
9. Ladies — Ladies'
10. Communists — Communists'

1. Children — Children's
2. Geese — Geese's
3. Oxen — Oxen's
4. Men — Men's
5. Mice — Mice's
6. Sheep — Sheep's
7. Fish — Fish's
8. Feet — Feet's
9. Moose — Moose's
10. Deer — Deer's

MODULE 3.18, Syllabication

1. Ladder
2. Slipper
3. Batter
4. Skipper
5. Chatter
6. Matter
7. Balloon
8. Ballast
9. Parrot
10. Kitten

1. Window
2. Simple
3. Carpet
4. Sister
5. Problem
6. Chapter
7. Bluster
8. Sunset
9. System
10. Corner

1. Vegetable
2. Marshmallow
3. Elderberry
4. Consonant
5. Beautiful
6. Carpenter
7. Important
8. Cucumber
9. Bicycle
10. Yesterday

1. Mid-dle
2. Ap-ple
3. In-for-ma-tion
4. Ex-am-ple
5. In-ter-view
6. Par-a-graph
7. Ar-ti-cle
8. Ti-ger
9. Dic-tion-ar-y
10. Com-for-ta-ble

MODULE 3.22, Punctuation

1. Mr. Bryant, our principal, was last seen out on the playground.
2. Baseball, football, basketball, and hockey are well-known team sports.
3. Do you know the answer?
4. "Do you know what time it is?" asked Joanna.
5. "Here they come!" shouted George.
6. Jeff won the race!
7. "Ouch! I cut my finger," cried Ellen.
8. Will you go to the circus?
9. The next assignment is on page 97.
10. "Come along with me," said Mrs. Grant.

1. When they entered the zoo the lion roared.
2. Hammers saws and screwdrivers are tools of a carpenter
3. Thick gray fog covered the ocean
4. Will you take me to the store asked David
5. We won the game
6. Is this the way to the library
7. Come here
8. Mary asked Are you going to the pool today
9. No said Arthur I will not go
10. Open your book turn to page seven and answer the questions.

MODULE 3.31, Nouns

1. Table
2. Animal
3. Philadelphia
4. Sing
5. Ship
6. Balloon
7. Was
8. Aquarium
9. Beautiful
10. The
11. Church
12. Potato
13. Run
14. New
15. Dwarf

1. Phillip opened
2. Run home
3. Boy fell
4. Mother yelled
5. Street curved
6. Dick wrote
7. Pen dropped
8. Open door
9. Wheel turned
10. Fix dinner

MODULE 3.32, Pronouns

1. He
2. They
3. Girl
4. We
5. I
6. An
7. Everybody
8. Our
9. It
10. Him
11. She
12. Us
13. Her
14. Someone
15. That

1. She went
2. I walked
3. You ate
4. Drink it
5. We swam
6. You thought
7. Do it
8. They followed
9. She cried
10. I tried

1. John rode the bicycle.
2. The girls played in the yard.
3. Monkeys, giraffes, and lions live in the zoo.
4. Bill's parrot talks.
5. Those are Mary's pencils.
6. The burglar went out the window.
7. Bob and I left for the game.
8. Please give the books to Susan and me.
9. Alice fell into the rabbit hole.
10. Will you take Jim, Bill and Joan to the circus?

MODULE 3.33, Verbs

1. Run
2. Playing
3. People
4. Is
5. Are
6. Sews
7. Worker
8. Clyde
9. Enjoy
10. Rested
11. Napping
12. Barks
13. Baby
14. Blowing
15. Animals

1. Sun shines
2. He goes
3. Horse trots
4. People sit
5. Go team
6. Kitten drinks
7. They sing
8. We play
9. Glue sticks
10. Burn paper

1. Cats
2. My children
3. You
4. Hands
5. His tooth
6. They
7. Pencil
8. Chair
9. Faucets
10. Our house

1. Tom draws
2. She skates
3. Rabbit hops
4. Shoes match
5. We think
6. Poet writes
7. Walter wiggles
8. Boys swim
9. They drink
10. He runs

MODULE 3.34, Adjectives

1. Pretty
2. Happy
3. Angry
4. Sunshine
5. Early
6. Black
7. Snowy
8. French
9. There
10. Strong
11. Biggest
12. Colorful
13. Late
14. Gross
15. Sing

1. Big boy runs
2. White rabbit hops
3. Sharp knife cuts
4. Laughing clown
5. Singing choir
6. Brown shoes
7. Thick fog
8. Spotted carpet
9. Proud father beams
10. Difficult task

1. Tim plays in the__________area.
2. Books are kept in the__________library.
3. The__________play in the yard.
4. The__________shoes were left on the steps.
5. The__________boy fell down.
6. John is wearing a__________shirt.
7. Tom took his__________sister to the park.
8. Jim wanted__________skates for his birthday.
9. The day was__________.
10. I want__________cake.

MODULE 3.35, Adverbs

1. Falsely
2. Neatly
3. Sunny
4. Better
5. Now
6. Strangely
7. Quickly
8. Flat
9. Quite
10. Good
11. Somewhat
12. Sweet
13. Rather
14. Lovely
15. Very

1. Ballerina danced nimbly
2. Engine rumbled sluggishly
3. Music played loudly
4. Merrily children chattered
5. Policeman spoke forcefully
6. Tiger viciously attacked
7. Records had not arrived
8. Badly injured fireman
9. They never came
10. Day became too cold

1. The boy was__________happy.
2. He was__________athletic.
3. The bird was__________pretty.
4. Please step__________.
5. The dog barked__________.
6. The race started__________.
7. Dr. Smith__________takes a vacation.
8. The mansion was__________beautiful.
9. Our car drove__________.
10. The bus__________arrives on time.

MODULE 3.36, Prepositions

About, Above, Across, After, Against, Among, Around, At, Before, Behind, Beside, Between, Beyond, By, Down, During, Except, For, From, In, Into, Like, Of, Off, Through, Throughout, On, Over, Past, Since, To, Toward, Underneath, Until, Up, Upon, Under, With, Within, Without, In front of, On account of, Next to, In back of, In spite of, With regard to

1. On the moon
2. From a hilltop
3. Under his bed
4. Behind the door
5. With an ax
6. In front of the tower
7. At the beach
8. Down the embankment
9. Across the bridge
10. Into the water

1. John tripped___________.
2. I listened to the record___________.
3. The child rose timidly___________.
4. A policeman___________entered the dark store.
5. Bill searched___________.
6. A doctor___________lifted the injured person.
7. A bonfire appeared___________.
8. The bird dove___________.
9. The skydiver jumped___________.
10. ___________we would go hungry.

MODULE 3.37, Articles and/or Specific Determiners

1. This
2. Under
3. Next
4. The
5. My
6. An
7. Girl
8. One
9. A
10. In

1. Pretty sunset
2. The sky
3. Green tree
4. An ocean
5. A blanket
6. Silly clown
7. The paper
8. Large dog
9. A book
10. An elephant

1. House
2. Tiger
3. Orchid
4. Pineapple
5. Hour
6. Herb
7. Cowboy
8. Eagle
9. Apple
10. Dinosaur

MODULE 4.23, Synonyms and Antonyms

1. Pretty — Beautiful
2. Small — Little
3. Build — Construct
4. Big — Large
5. Watch — Look
6. Automobile — Car
7. Close — Shut
8. Fast — Quick
9. Pants — Slacks
10. Cut — Slice

1. Ugly — Pretty
2. Good — Bad
3. Sick — Well
4. True — False
5. Yes — No
6. Work — Play
7. Soft — Hard
8. Long — Short
9. Wet — Dry
10. Open — Shut

MODULE 4.31, Contextual Clues

1. It was hot at the Fair, but we were cool and shaded beneath the canopy.
2. Eric, the leading candidate, will probably win the election.
3. Five hundred men were trapped down in the coal mine.
4. Everyone except Susie was invited to the party.
5. Since it is raining, the picnic was cancelled.

1. __________, John left school.
2. Albert,__________, will play a solo.
3. All of us__________are going on a field trip.
4. Joan and Susan will go__________.
5. __________Judy will play golf.

MODULE 4.41, Syntax

1. Classroom outside his airplane flew John always the paper.
2. Furnace sneakers Ken's not wet were dry the on put to.
3. Date late for party Al and the dinner very were his.
4. With my I Saturday every go deep-sea father fishing.
5. Noisily children on young played playground the the.

MODULE 4.51, Sentence Meaning

1. He was furious when Marty took the pie. Why was he furious?
2. Jim drew on his sneakers because he was bored. Why did he draw on his sneakers?
3. We will go to the store to buy bread and milk. What will we buy?
4. When he got home, Alvin ate a piece of pie. What did Alvin do when he got home?
5. We are going to the swimming pool because the afternoon is hot. Where are we going?

MODULE 4.52, Following Written Directions

1. Turn to the next lesson in your workbook. Read the directions carefully. Answer the questions.
2. Read the next story in your book. Write two questions about it. Tell me when you are done.
3. Take this note to the office. Ask the secretary to write her name on it. Bring it back to my desk.
4. Do these ten math problems. Check your work carefully. Show me your answers.
5. Throw away all your used papers. Get a clean piece of paper. Copy these sentences on it.

CHAPTER 6

CLINICAL TEACHER DESIRED PUPIL BEHAVIORS: AN INDIVIDUALIZED ARITHMETIC CURRICULUM

This arithmetic continuum is conceptualized and designed as a learning hierarchy containing a sequence of behaviorally defined objectives. While no assumption is made that the conceptual model is a true hierarchy, certain specific skills are considered prerequisite to other skills. Students lacking prerequisites probably will not be able to obtain higher skills. This arithmetic continuum specifies the objectives and procedures which are included in the resource section of each module.

The philosophy which dictated the design of the conceptual model is based on the concept that computation has first priority, with mathematical theory second. The ability to add, subtract, multiply, and divide is preferred above the ability to derive properties. To be able to perform the operations, students must acquire basic arithmetic skills. Three main categories of pre-arithmetic skills are specified in the conceptual model: (1) skills related to a sensory channel, (2) skills based on Piaget's concepts, and (3) arithmetic vocabulary skills. Children who lack these beginning arithmetic skills experience difficulty in learning the later operations. (Melnick, Bernstein, and Lehrer 1972; Resnick, Wang, and Kaplan, 1970). The lowest levels of skills on which the modules are written are visual, tactile, and auditory memory. The assumption is made that a Clinical Teacher would not be working with a child in a local school who had not attained the prerequisite discrimination skills.

Basic principles of the continuum are: (1) concrete materials should be used whenever possible, (2) terminology should be at a minimum, (3) symbols should be at a minimum, and (4) arithmetic is not an isolated and self-sufficient dicipline but is related to physical, economic, and social worlds (Kline, 1966). Within the curriculum modules are written covering each skill in the hierarchy. Cluster tests are available for on-going evaluation of the student. Also, charts illustrating the relationship of test items to modules can be used for placement on the continuum. The glossary defines terms to make common interpretation possible for all teachers. Suggestions of concrete manipulative materials for specific skill areas are given in the appendix. Determination of a student's entry level for placement on the continuum is diagnosed through use of the cluster tests. The module clusters of addition, subtraction, multiplication, and division contain procedures for instruction. The teacher should remember that the method of instruction to choose is the one by which the student learns best. In some modules, one procedure is presented with a step-by-step description. The teacher can utilize this in determining at what step the student is experiencing difficulty.

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APPROACH

For the past fifteen years a massive drive to evaluate, strengthen, and revise the school mathematics curriculum has taken place. Prior to this time, elementary school mathematics was being taught in terms of arithmetic skills. The content was fairly stable. With the approach of modern technology and the new discoveries being made in the field of mathematics, methodology could no longer remain constant. The "New Math" curriculum was implemented, not only at the secondary level, but also at the elementary level. The authors of modern mathematics were primarily mathematicians with little involvement from math educators (Cambridge Conference, 1963).

In dealing with the target population of the Clinical Teacher, the traditionally oriented, manipulative approaches of the arithmetic continuum will provide the student with the basic understanding and skills which he will need. However, since the goal of the Clinical Teacher is to mainstream the students, it will be necessary to provide them with the skills needed to succeed in the regular classroom. The modern mathematics being taught at the elementary level is presently being scrutinized and revised to meet the needs of the students. Since much of the modern math curriculum will remain, and since these children will be mainstreamed, they must be taught the necessary theory, terminology, and symbols utilized in a modern math instructional system. The Clinical Teacher arithmetic curriculum is based upon the assumption that once the computational skills are acquired, the student has a sound basis to move to the abstractions of modern mathematics.

An important part of modern mathematics which needs to be taught is the properties of the whole number system. Already in the Clinical Teacher continuum are the identity properties and the property of zero for multiplication. These are taught to the student in order to simplify the teaching process and save time when solving problems. The other properties which need to be taught at this point are the commutative properties, the associative properties, the distributive properties, and the closure properties. Students must learn to solve computational problems and equations in terms of the properties, because in modern mathematics problems are solved by using the properties. In other words, the student is taught the theory behind the mechanics of solving an algorithm. If the student is to proceed to higher level equations, knowledge of the properties is essential. Algebra, for example, can hardly be attempted without the proofs upon which each step is based.

Another area in which modern mathematics differs from traditional arithmetic is the amount of terminology used. Usually in a strict modern math program the terminology is given to the student before he has a full understanding of the concept which the label represents. For example, the terms "set" and "subset" are used regularly in modern mathematics programs. In the Clinical Teacher arithmetic continuum the student is taught the concept of set and subset at the pre-arithmetic stage; then the labels can be introduced to the student without confusing him.

Negative numbers have been purposely left out of the arithmetic continuum because they require a high level of abstraction. In order for the student to be able to solve problems which involve negative numbers, it is often necessary to use some of the properties. An example of this is: $4 - (-1) + (+2) = \underline{\qquad}$. Once the student has a knowledge of the properties, negative numbers may be introduced. Negative numbers may first be dealt with on the number line. Then, more abstract methods of problem solving with negative numbers may be taught.

Another major problem that mildly handicapped children must deal with in modern mathematics is the number of symbols used. These symbols are kept to a minimum in the continuum, but the underlying concepts for many of them have been taught. One concept which is taught to the student in both the vocabulary and the Piaget pre-arithmetic skills area is that of "more than" and "less than." Once the student can demonstrate the concept of "more than" and "less than" concretely and has these terms in his vocabulary, he is less likely to be confused by the introduction of the symbols > and <. In the addition modules and the one-to-one correspondence modules, the student learns the concepts of union and intersection. The symbols for these terms, *u* and *n*, may be taught to the student later.

At an early point in the elementary modern math curriculum, problems are presented in the horizontal equation form with the missing addend. For example:

$$4 + \underline{\qquad} = 10$$
$$9 - \underline{\qquad} = 3$$

This written form tends to confuse students in the early grades because it calls for a high level of abstraction. The student must solve the problem working from left to right, and reverse his thought process at the same time. For a student to solve the problem: 4 + ☐ = 10, he must subtract in his head, 10 − 4 = 6. To solve the subtraction problem: 9 − ☐ = 3, he will need to add in his head 3 + 6 = 9. However, the horizontal form is important for the student to learn, since algebra and other higher level mathematics require solving for unknowns by reversing operations. The missing addend, in the horizontal form, is also important because it provides him with a different way of viewing the problem. In a real life situation this is represented by: Donna has 4 pennies. How many more does she need to buy a ten cent candy bar?

The Clinical Teacher will encounter a variety of problems with students learning modern math skills. Some students will catch on very quickly, others will not have the level of abstraction needed and will require more time and practice. No attempt has been made here to provide the Clinical Teacher with a total modern math program. It is suggested that the Clinical Teacher become familiar with the modern math series used in his school. The series will suggest other areas of modern math that need to be explained to the student.

The arithmetic continuum is designed as an addition to instruction. The teacher can utilize the continuum to develop remediation strategies for achieving desired pupil gains.

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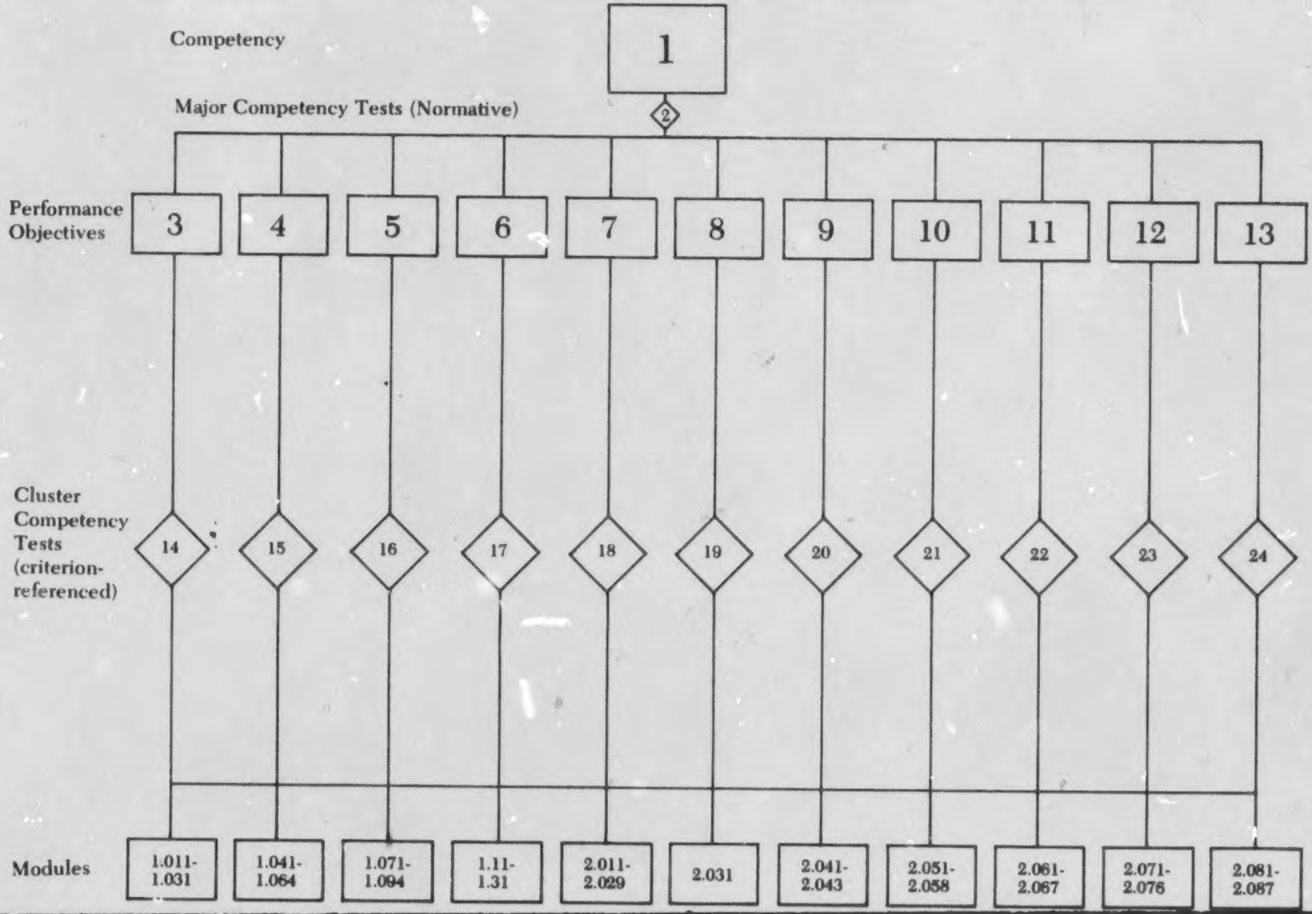
FIGURE 15. CONCEPTUAL MODEL FOR ARITHMETIC COMPETENCIES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COMPETENCY:

1. The competency of arithmetic is the integration of eight major areas (pre-arithmetic, conservation of number, fractional parts, place value, addition, subtraction, multiplication, and division) enabling the exceptional child to successfully perform the four major operations of arithmetic. Arithmetic achievement is measured by the child's ability to compute the appropriate answer without any constraints of specified time limits.

MAJOR COMPETENCY TESTS (Normative):

2. The major competency tests in arithmetic may be chosen by the Clinical Teacher from the wide array of standardized, norm-referenced achievement tests.

PERFORMANCE OBJECTIVES:

3., 4., & 5. A major part of the pre-arithmetic competency is the achievement of auditory, visual, and haptic skills which are prerequisite for arithmetic skills.

6., 7., & 8. The next part of the pre-arithmetic competency is the achievement of vocabulary, counting, conservation, and fractional knowledge skills.

9., 10., 11., 12., & 13. The arithmetic competency is the achievement of place value, addition, subtraction, multiplication, and division skills.

CLUSTER COMPETENCY TESTS (CRITERION-REFERENCED):

14., 15., & 16. The cluster competency tests on this section of pre-arithmetic are criterion-referenced measures of achievement in number knowledge, memory, sequential memory, association, and comprehension in the auditory, visual and haptic channels.

17., 18., & 19. The cluster competency tests on the next part of the pre-arithmetic area are measures of achievement in vocabulary, counting, conservation, and fractional parts.

20., 21., 22., 23., & 24. The cluster competency tests in arithmetic are criterion-referenced measures of achievement in place value, addition, subtraction, multiplication, and division.

1.0 COMPETENCY Pre-Arithmetic

1.01 MODULE CLUSTER Auditory Memory

1.011 MODULE Auditory Memory of Words

PURPOSE To provide the student with the skills for auditory memory of words.

BEHAVIORAL OBJECTIVES

Outcome: The student will verbally recall, in any sequence, a series of words.

Context: Three series of four familiar words, establishing set, spoken at the rate of one per second.

Criterion: 100% accuracy.

Outcome: The student will verbally recall, in any sequence, a series of words.

Context: Three series of four familiar words, not establishing set, spoken at the rate of one per second.

Criterion: 100% accuracy.

Outcome: The student will verbally recall, in any sequence, a series of words.

Context: Three series of two unfamiliar words, spoken at the rate of one per second.

Criterion: 100% accuracy.

Outcome: The student will verbally recall, in any sequence, a series of words.

Context: Three series of four familiar words, establishing set, spoken at the rate of one per second; a pause of five seconds following the aforementioned context, followed by the reading of a distracting sentence from an unfamiliar story, followed again by a five second pause.

Criterion: Clinical Teacher judgement.

Outcome: The student will verbally recall, in any sequence, a series of words.

Context: Three series of four familiar words, not establishing set, spoken at the rate of one per second; a pause of five seconds following the aforementioned context, followed by the reading of a distracting sentence from an unfamiliar story, followed by a five second pause.

Criterion: Clinical Teacher judgement.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Peabody Language Development Kit, Level #P
148-2.

Peabody Language Development Kit, Level #1
25-2; 26-4; 47-1; 66-2; 70-2; 105-3; 150-1; 194-3.

Song — Old MacDonald Had a Farm.

Nursery rhymes.

See Appendix.

SAMPLE TEST ITEMS

Given the series, "mother, father, sister, brother," spoken at the rate of one word per second, the student will repeat (not necessarily in order) the words.

Given the series, "dollar, chair, tree, shoe," spoken at the rate of one word per second, the student will repeat (not necessarily in order) the words.

Given the series, "unicorn, zealot," spoken at the rate of one word per second, the student will repeat (not necessarily in order) the words.

Given the series, "dog, cat, puppy, kitten," spoken at the rate of one word per second, the student will repeat (not necessarily in order) the series after a pause of five seconds and hearing the sentence, "As they were flying along, Polly suddenly remembered something."

Given the series, "stapler, bottle, purse, watch," spoken at the rate of one word per second, the student will repeat (not necessarily in order) the series after a pause of five seconds and hearing the sentence, "We don't have any clothes to wear except what we have on us now."

1.0 COMPETENCY Pre-Arithmetic

1.01 MODULE CLUSTER Auditory Memory

1.012 MODULE Auditory Memory of Numbers

PURPOSE To provide the student with the skills for auditory memory of numbers.

BEHAVIORAL OBJECTIVES

Outcome: The student will recall verbally, in any sequence, a series of numbers previously heard.

Context: Three series of four random numbers spoken at the rate of one per second.

Criterion: 100% accuracy.

Outcome: The student will recall verbally, in any sequence, a series of numbers previously heard.

Context: Three series of four random numbers spoken at the rate of one per second; a pause of five seconds following the aforementioned context, followed by the reading of a distracting sentence from an unfamiliar story, followed again by a five second pause.

Criterion: Clinical Teacher judgement.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Peabody Language Development Kit, Level #P
46-3: 47-1; 66-2; 198-3, 205-4; 214-2; 221-2; 236-3; 249-2.

SAMPLE TEST ITEMS:

Given the series 4, 7, 9, 1, spoken at the rate of one per second, the student will repeat the numbers (not necessarily in order).

Given the series 2, 7, 6, 9, spoken at the rate of one per second, the student will repeat the numbers (not necessarily in order) after a pause of five seconds and hearing the sentence, "Go jump over the fence and catch the dog."

1.0 COMPETENCY Pre-Arithmetic

1.02 MODULE CLUSTER Auditory Sequential Memory

1.021 MODULE Auditory Sequential Memory of Words

PURPOSE To provide the student with skills for auditory sequential memory of words.

BEHAVIORAL OBJECTIVES

Outcome: The student will recall verbally, in the order presented, a sentence.

Context: A four-word sentence, spoken at the rate of one word per second.

Criterion: 100% accuracy over three trials.

Outcome: The student will recall verbally, in the order presented, a sequence.

Context: A four-word sequence, spoken at the rate of one word per second.

Criterion: 100% accuracy over three trials.

Outcome: The student will recall verbally, in the order presented, a sentence.

Context: A nine-word sentence, spoken at the rate of one word per second.

Criterion: 100% accuracy over three trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Peabody Language Development Kit, Level #P
8-4; 9-1; 30-1; 73-2; 103-2.

Peabody Language Development Kit, Level #1
18-2; 19-4; 37-1; 104-1; 106-3; 116-2; 122-1; 154-1; 161-1.

Nursery Rhymes.

Songs.

See Appendix.

SAMPLE TEST ITEMS

Given orally a four-word sentence, "I like yellow flowers," the student will repeat the sentence.

Given orally a four-word sequence, "rain, ice, sun, shoe," the student will repeat the sequence.

Given orally a nine-word sentence, "I am going to go to the beach tomorrow," the student will repeat the sentence.

1.0 COMPETENCY Pre-Arithmetic

1.02 MODULE CLUSTER Auditory Sequential Memory

1.022 MODULE Auditory Sequential Memory of Numbers

PURPOSE To provide the student with the skills for auditory sequential memory of numbers.

BEHAVIORAL OBJECTIVE

Outcome: The student will recall verbally, in sequence, a series of numbers.

Context: A series of four random numbers spoken at the rate of one per second.

Criterion: 100% accuracy over three trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Peabody Language Development Kit, Level #P
81-2.

Peabody Language Development Kit, Level #1
97-3; 104-1; 157-3; 158-3.

Song — Ten Little Indians.

See Appendix.

SAMPLE TEST ITEM

Given orally the series of four numbers, 5, 3, 1, 6, spoken at the rate of one per second, the student will repeat the numbers in sequence.

1.0 COMPETENCY Pre-Arithmetic

1.03 MODULE CLUSTER Auditory Comprehension

1.031 MODULE Auditory Comprehension — Literal

PURPOSE To provide the student with the skills for literal auditory comprehension.

BEHAVIORAL OBJECTIVES

Outcome: The student will perform an action.
Context: One direction, presented orally.
Criterion: 100% accuracy.

Outcome: The student will perform a series of actions in sequence.
Context: A series of three directions, presented orally.
Criterion: 100% accuracy over three trials.

Outcome: The student will verbally recall five details of a story.
Context: A story presented orally.
Criterion: 100% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Peabody Language Development Kit, Level #P
49-3; 51-1; 70-3; 87-2; 104-3; 124-3; 125-1 & 2; 131-1; 134-1; 136-2; 148-1.

Following Verbal Directions
32-2 & 4; 37-4; 50-2; 57-2; 63-4; 65-2; 67-2; 68-4; 75-4; 82-3 & 4; 92-2; 98-1; 100-4; 102-4; 104-2; 109-4; 114-2; 126-2, 3 & 4; 131-2; 139-4; 140-2; 141-2; 145-4; 147-2; 170-4; 176-3; 178-1.

Peabody Language Development Kit, Level #1
18-3; 33-3; 38-1.

SAMPLE TEST ITEMS

Given orally the direction, "Fold your hands," the student will perform the action.

Given orally the series of three directions, "Clap your hands, stamp your feet, and nod your head," in that order, the student will perform the required actions in sequence.

Given a story presented orally, the student will verbally recall five details of the story.

1.0 COMPETENCY Pre-Arithmetic

1.04 MODULE CLUSTER Tactile Memory

1.041 MODULE Tactile Memory of Objects

PURPOSE To provide the student with the skills for tactile memory of objects.

BEHAVIORAL OBJECTIVE

Outcome: The student will select an object previously felt.

Context: A three-dimensional object presented to the student without visual or auditory clues for five seconds; presented for recall with three other three-dimensional objects again without visual or auditory clues.

Criterion: 100% accuracy over four trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The teacher hands a familiar object to the student to feel and look at which has visual and auditory clues. The teacher may name the object for the student as well as describe it.

The teacher hands a familiar object to the student to feel without visual and auditory clues, and asks if the student has felt that object before. This activity should be done after the student had felt the object with visual and auditory clues earlier that day.

The teacher hands an unfamiliar object to the student to feel and look at which has visual and auditory clues. The teacher may name the object for the student as well as describe it.

The teacher hands an unfamiliar object to the student to feel without visual and auditory clues, and asks the student if he has felt that object before. This activity should be done after the student has felt that object with visual and auditory clues earlier that day.

SAMPLE TEST ITEM

Given a toy car and three other objects, with verbal directions to feel the car, the blindfolded student will correctly identify the car when presented with the series of four objects.

1.0 COMPETENCY Pre-Arithmetic

1.04 MODULE CLUSTER Tactile Memory

1.042 MODULE Tactile Memory of Shapes

PURPOSE To provide the student with the skills for tactile memory of shapes.

BEHAVIORAL OBJECTIVES

Outcome: The student will select a shape previously felt.

Context: A three-dimensional shape (sphere, cube, pyramid, rectangular block) presented to the student without visual or auditory clues for five seconds; presented for recall with three other three-dimensional shapes again without visual or auditory clues.

Criterion: 100% accuracy over four consecutive trials.

Outcome: The student will select a shape previously felt.

Context: A three-dimensional shape (circle, square, triangle, and rectangle) presented to the student without visual or auditory clues for five seconds; presented for recall with three other three-dimensional shapes again without visual or auditory clues.

Criterion: 100% accuracy over four consecutive trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The teacher hands a three-dimensional shape to the student to look at and feel. She may name and describe the object for the student.

The teacher hands a three-dimensional shape to the student to feel without visual or auditory clues. She then asks the student if he has felt that object before (this should be preceded by activity).

The teacher hands a three-dimensional shape to the student to feel and look at. She may name and describe the object for the student. This procedure is further elaborated in *Diagnostic and learning activities in mathematics for children*, by Richard W. Copeland (New York: MacMillan, 1974.)

The teacher hands a three-dimensional shape to the student to feel without visual or auditory clues. She then asks the student if he has felt that object before.

SAMPLE TEST ITEMS

Given the three-dimensional shape, a pyramid, presented for five seconds without visual or auditory clues, the student will select the pyramid when presented with three other three-dimensional shapes.

Given the three-dimensional shape, a circle, presented for five seconds without visual or auditory clues, the student will select the circle when presented with three other three-dimensional shapes.

1.0 COMPETENCY Pre-Arithmetic

1.04 MODULE CLUSTER Tactile Memory

1.043 MODULE Tactile Memory of Texture

PURPOSE To provide the student with the skills for tactile memory of texture.

BEHAVIORAL OBJECTIVE

Outcome: The student will select a texture previously felt.

Context: A texture presented to the student without visual or auditory clues for five seconds; presented for recall with three other textures, again without visual or auditory clues.

Criterion: 100% accuracy over four trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The teacher gives the student a variety of textures to feel and look at, such as sandpaper, carpet, and wood.

The teacher gives the student a variety of textures to feel without visual and auditory clues.

The teacher gives the student one texture to feel and look at. She then blindfolds the student while the student feels and selects the same object from a group of objects.

The teacher gives the student one texture to feel without visual or auditory clues and then has the student select that object from a group of objects without visual or auditory clues.

See Appendix.

SAMPLE TEST ITEM

Given a piece of corduroy to feel, without visual and auditory clues, the student selects the corduroy from a series of three other objects such as glue, wood, and plastic.

1.0 COMPETENCY Pre-Arithmetic

1.04 MODULE CLUSTER Tactile Memory

1.044 MODULE Tactile Memory of Numbers (1-9)

PURPOSE To provide the student with the skills for tactile memory of numbers.

BEHAVIORAL OBJECTIVES

Outcome: The student will select a number previously felt.

Context: A three-dimensional number (1-9) presented to the student without visual or auditory clues for five seconds; presented for recall with three other three-dimensional numbers without visual or auditory clues.

Criterion: 100% accuracy over four consecutive trials.

Outcome: The student will select a number previously felt.

Context: A three-dimensional number (1-9) presented to the student without visual or auditory clues for five seconds; presented for recall with three other three-dimensional numbers again without visual or auditory clues.

Criterion: 100% accuracy over four consecutive trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The teacher gives the student three physically different three-dimensional numbers (i.e., 1, 4, 8) to feel and look at.

The teacher gives the student three physically similar three-dimensional numbers (i.e., 6, 8, 9) to feel and look at.

The teacher gives the student three very different three-dimensional numbers to feel without visual and auditory clues.

The teacher gives the student three similar three-dimensional numbers to feel without visual and auditory clues.

The teacher will hand the student a three-dimensional number to feel and have him pick it out from a group of three very different numbers, without visual or auditory clues.

The teacher will hand the student a three-dimensional number and have him pick it out from a group of three similar numbers, without visual or auditory clues.

The teacher will hand the student a three-dimensional number to look at and feel.

The teacher will hand the student a three-dimensional number to feel and have him select it from a group of three very different numbers, without visual or auditory clues.

The teacher will hand the student a three-dimensional number to feel and have him select it from a group of three similar numbers without visual or auditory clues.

See Appendix.

SAMPLE TEST ITEMS

Given the three-dimensional number 4 to feel, the student then selects the number from a group of three three-dimensional numbers without visual or auditory clues.

Given a three-dimensional number 2 to feel, the student then selects the number from a group of three three-dimensional numbers.

1.0 COMPETENCY Pre-Arithmetic

1.05 MODULE CLUSTER Tactile Sequential Memory

1.051 MODULE Tactile Sequential Memory of Objects

PURPOSE To provide the student with the skills for tactile sequential memory of objects.

BEHAVIORAL OBJECTIVE

Outcome: The student will place in sequence a series of objects previously felt.

Context: Four objects presented for five seconds in random sequence without visual or auditory clues; scrambled and presented for recall again without visual or auditory clues.

Criterion: 100% accuracy over three trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The teacher has the student feel and look at two familiar objects in a certain order, scrambles them, then has the student replace them in order.

The teacher has the student feel and look at three familiar objects in a certain order, scrambles the objects and has the student replace them in order.

The teacher has the student feel three familiar objects in a certain order, scrambles them and has the student replace them in order without visual or auditory clues.

The teacher has the student feel four objects (three familiar and one not familiar) in a certain order, scrambles them and has the student replace them in order, without visual or auditory clues.

The teacher has the student feel four objects (two familiar and two unfamiliar) in a certain order, scrambles them and has the student replace them in order without visual or auditory clues.

The teacher has the student feel four unfamiliar objects in a certain order, scrambles them and has the student replace them in order, without visual or auditory clues.

See Appendix.

SAMPLE TEST ITEM

Given the series of four unfamiliar objects (ashtray, bottle, eye glass case, and wall socket plate) to feel in a certain order for five seconds, the student will replace the objects in order after they have been scrambled, without visual or auditory clues.

1.0 COMPETENCY Pre-Arithmetic

1.05 MODULE CLUSTER Tactile Sequential Memory

1.052 MODULE Tactile Sequential Memory of Shapes

PURPOSE To provide the student with the skills for tactile sequential memory of shapes.

BEHAVIORAL OBJECTIVES

Outcome: A student will place in sequence a series of shapes previously felt.

Context: Three-dimensional shapes (sphere, cube, pyramid, rectangular block) presented for five seconds in random sequence without visual or auditory clues; scrambled and presented for recall again without visual or auditory clues.

Criterion: 100% accuracy over three trials.

Outcome: A student will place in sequence a series of shapes previously felt.

Context: Three-dimensional shapes (circle, square, triangle, rectangle) presented for five seconds in random sequence without visual or auditory clues.

Criterion: 100% accuracy over three trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The teacher has the student feel and look at two three-dimensional shapes in a certain order, scrambles the shapes, and has the student replace them in order.

The teacher has the student feel and look at three three-dimensional shapes in a certain order, scrambles the shapes and has the student replace them in order.

The teacher has the student feel three three-dimensional shapes in a certain order, scrambles the shapes and has the student replace them in order without visual or auditory clues.

The teacher has the student feel four three-dimensional shapes in a certain order, scrambles the shapes and has the student replace them in order without visual or auditory clues.

The teacher has the student feel and look at three three-dimensional shapes in a certain order, scrambles the shapes and has the student replace them in order.

The teacher has the student feel three three-dimensional shapes in a certain order, scrambles the shapes and has the student replace them in order without visual or auditory clues.

The teacher has the student feel four three-dimensional shapes in a certain order, scrambles the shapes and has the student replace them in order without visual or auditory clues.

See Appendix.

SAMPLE TEST ITEMS

Given the series of three-dimensional shapes (sphere, cube, pyramid, and rectangular block) presented in that order to feel without visual or auditory clues, and then scrambled, the student will replace the shapes in order.

Given the series of three-dimensional shapes (square, circle, triangle, and rectangle) presented in that order to feel without visual or auditory clues, and then scrambled, the student will replace the shapes in order.

1.0 COMPETENCY Pre-Arithmetic

1.05 MODULE CLUSTER Tactile Sequential Memory

1.053 MODULE Tactile Sequential Memory of Texture

PURPOSE To provide the student with the skills for tactile sequential memory of texture.

BEHAVIORAL OBJECTIVE

Outcome: The student will place in sequence a series of three textures previously felt.

Context: A series of textures presented for five seconds in random sequence without visual or auditory clues; scrambled and presented for recall again without visual or auditory clues.

Criterion: 100% accuracy over three consecutive trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The teacher has the student feel and look at two textures in a certain order, scrambles the textures, and has the student replace them in order.

The teacher has the student feel and look at three textures in a certain order, scrambles the textures, and has the student replace them in order.

The teacher has the student feel three textures in a certain order, scrambles the textures, and has the student replace them in order without visual or auditory clues.

See Appendix.

SAMPLE TEST ITEM

Given a series of three textures, sandpaper, corduroy, and velvet, presented in that order the student will replace the textures in order after the order has been scrambled, without visual or auditory clues.

1.0 COMPETENCY Pre-Arithmetic

1.05 MODULE CLUSTER Tactile Sequential Memory

1.054 MODULE Tactile Sequential Memory of Numbers

PURPOSE To provide the student with the skills for tactile sequential memory of numbers.

BEHAVIORAL OBJECTIVES

Outcome: The student will replace in sequence a series of numbers previously felt.

Context: Three three-dimensional numbers (1-9), presented for five seconds in random sequence without visual or auditory clues; scrambled and presented for recall without visual or auditory clues.

Criterion: 100% accuracy over three consecutive trials.

Outcome: The student will replace in sequence a series of numbers previously felt.

Context: Three three-dimensional numbers (1-9), presented for five seconds in random sequence without visual or auditory clues; scrambled and presented for recall without visual or auditory clues.

Criterion: 100% accuracy over three consecutive trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The teacher has the student feel and look at two three-dimensional numbers, scrambles the numbers and has the student replace them in order.

The teacher has the student feel and look at three three-dimensional numbers, scrambles the numbers and has the student replace them in order.

The teacher has the student feel three physically different three-dimensional numbers, scrambles the numbers and has the student replace them in order without visual or auditory clues.

The teacher has the student feel three similar three-dimensional numbers, scrambles the numbers, and has the student replace them in order without visual or auditory clues.

The teacher has the student feel and look at three three-dimensional numbers, scrambles the numbers, and has the student replace them in order.

The teacher has the student feel three three-dimensional numbers, scrambles the numbers, and has the student replace them in order, with or without visual clues.

See Appendix.

SAMPLE TEST ITEMS

Given the three-dimensional numbers 6, 4, 8, to feel without visual or auditory clues, the student will replace those numbers in order after the order has been scrambled.

Given the three-dimensional numbers 1, 5, 7, to feel without visual or auditory clues, the student will replace those numbers in order after the order has been scrambled.

1.0 COMPETENCY Pre-Arithmetic

1.06 MODULE CLUSTER Tactile Association

1.061 MODULE Tactile Association of Objects

PURPOSE To provide the student with the skills for tactile association of objects.

BEHAVIORAL OBJECTIVE

Outcome: The student will name an object previously felt.

Context: A three-dimensional object presented for five seconds to the student without visual or auditory clues.

Criterion: 100% accuracy over three trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The teacher hands the student a three-dimensional object to feel and look at while the teacher names the object.

The teacher hands the student a three-dimensional object to feel without visual clues while the teacher names the object.

The teacher hands the student a three-dimensional object to feel without visual clues and the student names the object.

See Appendix.

SAMPLE TEST ITEM

Given a toy truck to feel, the student will name it without visual or auditory clues.

1.0 COMPETENCY Pre-Arithmetic

1.06 MODULE CLUSTER Tactile Association

1.062 MODULE Tactile Association of Shapes

PURPOSE To provide the student with the skills for tactile association of shapes.

BEHAVIORAL OBJECTIVES

Outcome: The student will name a shape previously felt.

Context: A three-dimensional shape presented for five seconds to the student without visual or auditory clues.

Criterion: 100% accuracy over three trials.

Outcome: The student will name a shape previously felt.

Context: Three dimensional shape presented to the student for five seconds without visual or auditory clues.

Criterion: 100% accuracy over three trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The teacher hands the student a three-dimensional shape to feel and look at while the teacher names the shape.

The teacher hands the student a three-dimensional shape to feel without visual clues while the teacher names the shape.

The teacher hands the student a three-dimensional shape to feel without visual clues and the student names the shape.

The teacher hands the student a three-dimensional shape to feel without visual clues, and then names it for the student.

The teacher hands the student a three-dimensional shape to feel and name without visual or auditory clues.

See Appendix.

SAMPLE TEST ITEMS

Given the three-dimensional shape of a sphere to feel, the student will name it without visual or auditory clues.

Given the three-dimensional shape of a square to feel, the student will name it without visual or auditory clues.

1.0 COMPETENCY Pre-Arithmetic

1.06 MODULE CLUSTER Tactile Association

1.063 MODULE Tactile Association of Texture

PURPOSE To provide the student with the skills for tactile association of texture.

BEHAVIORAL OBJECTIVE

Outcome: The student will name a texture previously felt.

Context: A texture presented to the student for five seconds without visual or auditory clues.

Criterion: 100% accuracy over three trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The teacher hands the student a texture to feel and look at while the teacher names the texture.

The teacher hands the student a texture to feel and name without visual or auditory clues.

See Appendix.

SAMPLE TEST ITEM

Given a piece of sandpaper to feel without visual or auditory clues, the student correctly names the texture.

1.0 COMPETENCY Pre-Arithmetic

1.06 MODULE CLUSTER Tactile Association

1.064 MODULE Tactile Association of Numbers

PURPOSE To provide the student with the skills for tactile association of numbers.

BEHAVIORAL OBJECTIVES

Outcome: The student will name a number previously felt.

Context: Three-dimensional numbers (1-9) presented for five seconds without visual or auditory clues.

Criterion: 100% accuracy over three trials.

Outcome: The student will name a number previously felt.

Context: Three-dimensional numbers (1-9) presented for five seconds without visual or auditory clues.

Criterion: 100% accuracy over three trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The teacher gives the student three physically different three-dimensional numbers (i.e., 1, 4, 8) to feel and look at, while the teacher names them.

The teacher gives the student three similar three-dimensional numbers (i.e., 6, 8, 9) to feel and look at, while the teacher names them.

The teacher gives the student three physically different three-dimensional numbers (i.e., 1, 4, 8) to feel without visual clues while the teacher names them.

The teacher gives the student three similar three-dimensional numbers (i.e., 6, 8, 9) to feel without visual clues while the teacher names them.

The teacher gives the student a three-dimensional number to feel and name without visual or auditory clues.

The teacher gives the student three-dimensional numbers to feel without visual clues while the teacher names them.

The teacher gives the student a three-dimensional number to feel without visual or auditory clues and the student names them.

See Appendix.

SAMPLE TEST ITEMS

Given the three-dimensional number 4 to feel, the student will name it without visual or auditory clues.

Given the three-dimensional number 2 to feel, the student will name it without visual or auditory clues.

1.0 COMPETENCY Pre-Arithmetic

1.07 MODULE CLUSTER Visual Memory

1.071 MODULE Visual Memory of Objects

PURPOSE To provide the student with the skills for visual memory of objects.

BEHAVIORAL OBJECTIVE

Outcome: The student will point to an object previously seen.

Context: A common classroom object, presented for five seconds.

Criterion: 100% accuracy over three consecutive trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The teacher presents the student with an object, and then asks him to point to the object when presented with a group of objects. The stimulus object will be showing as well as the object being present in the group.

The teacher presents the student with an object, and then asks him to point to the object when presented with a group of shapes. No stimulus object is shown while the object is presented in the group.

SAMPLE TEST ITEM

Shown a ruler, the student will select it from the group containing a pencil, ruler, eraser, book, when given the verbal directions, "Point to the object you just saw."

1.0 COMPETENCY Pre-Arithmetic

1.07 MODULE CLUSTER Visual Memory

1.072 MODULE Visual Memory of Shapes

PURPOSE To provide the student with the skills for visual memory of shapes.

BEHAVIORAL OBJECTIVES

Outcome: The student will point to a shape previously seen.

Context: A three-dimensional geometric shape (sphere, cube, pyramid, rectangular block) presented for five seconds; presented for recall with three other three-dimensional geometric shapes.

Criterion: 100% accuracy.

Outcome: The student will point to a shape previously seen.

Context: A two-dimensional geometric shape (circle, square, rectangle, triangle) presented for recall with three other two-dimensional geometric shapes.

Criterion: 100% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The teacher presents the student with a three-dimensional shape, and then asks him to point to the shape when presented with a group of shapes. (The stimulus shape will be showing, while the shape is being presented in the group.)

The teacher presents the student with a three-dimensional shape and then asks him to point to the shape when presented with a group of objects. No stimulus shape is shown while the shape is presented in the group.

The teacher presents the student with a written two-dimensional shape, and then asks him to point to the shape when presented with a group of shapes. The stimulus shape will be showing, as well as the shape being presented in the group.

SAMPLE TEST ITEMS

Shown a ball and given verbal directions, "Point to the shape you just saw," the student will select the ball from the group of cube, ball, pyramid, rectangular block.

Shown a two-dimensional square, the student will select it from the group containing a square, diamond, circle, triangle, when given the verbal directions, "Point to the shape you just saw."

1.0 COMPETENCY Pre-Arithmetic

1.07 MODULE CLUSTER Visual Memory

1.073 MODULE Visual Memory of Numbers (1-10)

PURPOSE To provide the student with the skills for visual memory of numbers.

BEHAVIORAL OBJECTIVE

Outcome: The student will point to a number previously seen.

Context: An Arabic numeral (1, 2, 3, 4, 5, 6, 7, 8, 9, 10) presented on flash card for five seconds; presented for recall with three other numbers.

Criterion: 100% accuracy over four consecutive trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The teacher presents the student with a number, and then asks him to point to the number when presented with a group of shapes. The stimulus number will be showing, while the number is being presented in the group.

The teacher presents the student with a number, and then asks him to point to the number when presented with a group of symbols. No stimulus card is shown for the number while it is being presented in the group.

The teacher presents the student with a number and then asks him to point to the number when presented with a group of numbers. The stimulus number will be showing, while the number is being presented in the group.

SAMPLE TEST ITEM

Shown a card with the number 7 on it, and verbal directions, "Point to the number you just saw," the student will correctly select that number when it is presented in the group 8, 7, 3, 9.

1.0 COMPETENCY Pre-Arithmetic

1.07 MODULE CLUSTER Visual Memory

1.074 MODULE Visual Memory of Symbols: (+, −, =, /)

PURPOSE To provide the student with the skills for visual memory of symbols.

BEHAVIORAL OBJECTIVE

Outcome: The student will point to a symbol previously seen.

Context: An arithmetic symbol (+, −, =, or /) presented on a flash card for five seconds; presented for recall with the three other specified symbols on flash cards.

Criterion: 100% accuracy over four consecutive trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The teacher presents the student with a symbol, and then asks him to point to the symbol when presented with a group of objects. The stimulus symbol will be showing, while the symbol is being presented, in the group.

The teacher presents the student with a symbol, and then asks him to point to the symbol when presented with a group of shapes. No stimulus card is shown for the symbol while it is being presented in the group.

SAMPLE TEST ITEM

Shown the card with the symbol = on it, and given verbal directions to point to the symbol previously seen, the student will correctly select that symbol when it is presented in the group (+, −, =, /).

1.0 COMPETENCY Pre-Arithmetic

1.08 MODULE CLUSTER Visual Sequential Memory

1.081 MODULE Visual Sequential Memory of Objects

PURPOSE To provide the student with the skills for visual sequential memory of objects.

BEHAVIORAL OBJECTIVE

Outcome: The student will replace in sequence a series of objects previously seen.

Context: Three small classroom objects presented for five seconds in random sequence; scrambled and presented for recall.

Criterion: 100% accuracy over three consecutive trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The student reproduces a sequence of objects while looking at the original model.

The teacher lines up a sequence of objects in front of the student, takes one away, and then has the student identify the missing object.

The student works puzzles.

The student draws a picture of an object previously seen.

SAMPLE TEST ITEM

Given a sequence of pencil, eraser, and ruler, the student will replace the objects in correct sequence after they have been scrambled.

1.0 COMPETENCY Pre-Arithmetic

1.08 MODULE CLUSTER Visual Sequential Memory

1.082 MODULE Visual Sequential Memory of Shapes

PURPOSE To provide the student with the skills for visual sequential memory of shapes.

BEHAVIORAL OBJECTIVES

Outcome: The student will replace in sequence a series of shapes previously seen.

Context: Three-dimensional shapes (sphere, cube, pyramid) presented for five seconds in random sequence, scrambled and presented for recall.

Criterion: 100% accuracy over three consecutive trials.

Outcome: The student will replace in sequence a series of shapes previously seen.

Context: A drawn two-dimensional circle, square, rectangle, and triangle, presented for five seconds in random sequence; scrambled and presented for recall.

Criterion: 100% accuracy over three consecutive trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Peabody Language Development Kit, Level #P
108-1.

Peabody Language Development Kit, Level #1
56-2.

The student reproduces a sequence of shapes while looking at the original model.

The teacher puts three shapes in front of the student, takes one away and has the student identify the missing shape.

The teacher exposes a picture of objects of various shapes for thirty seconds, covers it up, and has the student tell the main objects in the picture.

See Appendix.

SAMPLE TEST ITEMS

Given a three-dimensional sphere, cube, rectangle, and triangle, the student will correctly replace the shapes in order after they have been scrambled.

Given a drawn two-dimensional triangle, circle, and square, the student will correctly replace the shapes in order after they have been scrambled.

1.0 COMPETENCY Pre-Arithmetic

1.08 MODULE CLUSTER Visual Sequential Memory

1.083 MODULE Visual Sequential Memory of Numbers (1-10)

PURPOSE To provide the student with the skills for visual sequential memory of numbers.

BEHAVIORAL OBJECTIVE

Outcome: The student will replace in sequence a series of numbers previously seen.

Context: Three Arabic numbers presented on flash cards for five seconds in random sequence; scrambled and presented for recall.

Criterion: 100% accuracy over three consecutive trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The student reproduces a sequence of numbers while looking at the original model.

The student plays the game of concentration with cards.

SAMPLE TEST ITEM

Given a sequence of flash cards with 7, 3, 6, written on them, the student will correctly replace the numbers in order after they have been scrambled.

1.0 COMPETENCY Pre-Arithmetic

1.08 MODULE CLUSTER Visual Sequential Memory

1.084 MODULE Visual Sequential Memory of Symbols

PURPOSE To provide the student with the skills for visual sequential memory of symbols.

BEHAVIORAL OBJECTIVE

Outcome: The student will replace in sequence a series of symbols previously seen.

Context: Four symbols (+, −, =, /) presented on flash cards for five seconds, in random sequence; scrambled and presented for recall.

Criterion: 100% accuracy over three consecutive trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The student reproduces a sequence of symbols while looking at the original model.

The teacher lines up a sequence of symbols in front of the student, takes one away, and then has the student identify the missing symbol.

SAMPLE TEST ITEM

Given a sequence of flash cards with +, −, =, and / written on them, the student will correctly replace the symbols in order after they have been scrambled.

1.0 COMPETENCY Pre-Arithmetic

1.09 MODULE CLUSTER Number Knowledge

1.091 MODULE Matching

PURPOSE To provide the student with the skills for matching numbers.

BEHAVIORAL OBJECTIVES

Outcome: The student will point to an Arabic numeral (1-10) which matches a stimulus numeral.

Context: A printed series of four numerals in random sequence, presented with a stimulus numeral, on a flash card, which is also included in the series.

Criterion: 100% accuracy over five consecutive trials.

Outcome: The student will draw a line between two matching numerals.

Context: Two adjacent columns of numerals, containing the same four numerals each arranged in a different sequence.

Criterion: 100% accuracy over three consecutive trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The student selects a number from a set of number cards which matches the stimulus number shown.

The student draws a line from one number to the matching number on the blackboard.

The student plays concentration with cards or dominoes, and/or number lotto.

SAMPLE TEST ITEM

Given the numbers written on the board (as shown below), the student will draw a line from each number to the matching number.

1	6
4	4
6	1
7	7

1.0 COMPETENCY Pre-Arithmetic

1.09 MODULE CLUSTER Number Knowledge

1.092 MODULE Recognition of Numbers

PURPOSE To provide the student with the skills to match the name of a numeral with its visual counterpart.

BEHAVIORAL OBJECTIVE

Outcome: The student will point to a numeral which has been named.

Context: A series of ten printed Arabic numerals (1-10) in random sequence and verbal directions naming one of the numerals.

Criterion: Correct recognition of 100% of the numbers (1-10).

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The student uses a Language Master and cards for the numbers.

The student plays bingo.

The student plays number lotto.

The student plays cards.

The student plays dominoes.

See Appendix.

SAMPLE TEST ITEM

Given the verbal directions, "Point to the number 3, " the student correctly points to the number 3 located on the number line.

1.0 COMPETENCY Pre-Arithmetic

1.09 MODULE CLUSTER Number Knowledge

1.093 MODULE Identification of Numbers

PURPOSE To provide the student with the skill for identification of Arabic numerals (1-40)

BEHAVIORAL OBJECTIVE

Outcome: The student will name the numerals (set of 10 numerals).

Context: Any printed numeral on a flash card.

Criterion: 100% accuracy, all numerals (1-10).

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The student uses a Language Master and cards of the numbers.

The student names numerals presented in different media, such as on the chalk board or on transparencies.

See Appendix.

SAMPLE TEST ITEMS

Given the number 5 printed on a flash card, the student will name the number.

Given the number 9 printed on a flash card, the student will name the number.

Given the number 1 printed on a flash card, the student will name the number.

1.0 COMPETENCY Pre-Arithmetic

1.09 MODULE CLUSTER Number Knowledge

1.094 MODULE Recall and Reproduction

PURPOSE To provide the student with the skills for recall and reproduction of numerals (1-10).

BEHAVIORAL OBJECTIVE

Outcome: The student will print numerals.

Context: Verbal presentation, in random order, of all ten numerals.

Criterion: 100% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The student writes the number in different media, such as sand or finger paint, while looking at the number presented on the flash card.

The student molds the number out of different media such as clay or Play-Doh while looking at the number.

See Appendix (paint, sand, clay, Play-Doh, chalk, blackboard, pencil, and paper, flash cards of numerals, sand paper numbers).

SAMPLE TEST ITEMS

Given the verbal directions to write the number 5, the student writes the number using a pencil and paper

Given the verbal directions to write the number 2, the student writes the number using a pencil and paper.

Given the verbal directions to write the number 10, the student writes the number using a pencil and paper.

1.0 COMPETENCY Pre-Arithmetic

1.1 MODULE CLUSTER Arithmetic Vocabulary

1.11 MODULE Quantity Words (long, short, large, small, big, little, full, empty, all, none, more than, less than, equal, whole, part)

PURPOSE To provide the student with the skills for recognition and identification of quantity words.

BEHAVIORAL OBJECTIVES

Outcome: The student will point to the drawing of a quantity previously named.

Context: A sequence of ten quantity drawings portraying different quantities and verbal directions naming one of the quantities.

Criterion: Recognition of 90% of the quantities.

Outcome: The student will name the quantity.

Context: Drawings of a quantity presented on a flash card.

Criterion: Identification of 90% of the quantities.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Peabody Language Development Kit, Level #P
54-3; 165-1; 181-2; 182-4; 365-2.

Drawings of quantity words.

SAMPLE TEST ITEMS

Given a series of ten drawings showing the quantities none, full, long, short, large, small, half, all, equal, and more, and given verbal directions to point to the picture showing "none," the student points to the picture showing "none".

Given a drawing of the quantity "full" and the question, "What quantity does this show?", the student says, "full."

1.0 COMPETENCY Pre-Arithmetic

1.1 MODULE CLUSTER Arithmetic Vocabulary (auditory, visual, and tactile comprehension)

1.12 MODULE Position words (near, far, up, down, over, under, in, out, front, back, before, after, beginning, middle, end, first, second, last, left, right)

PURPOSE To provide the student with the skills for recognition and identification of position words.

BEHAVIORAL OBJECTIVES

Outcome: The student will point to the drawing of a position which has been named.

Context: A series of ten drawings each portraying a different position and verbal directions naming one of the positions. For example, one drawing in the series would portray the position "near." The student would be asked to identify the position "near" by pointing to the appropriate picture.

Criterion: Recognition of 90% of the positions.

Outcome: The student will name the position.

Context: Drawings of a position presented on a flash card.

Criterion: Identification of 90% of the positions.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Peabody Language Development Kit, Level #P
131-4; 277-4; 348-4; 162-4; 200-3; 269-2.

Pictures showing position words.

SAMPLE TEST ITEMS

Given a series of ten drawings showing the positions up, near, over, down, far, in, beginning, end, left, and right, and given verbal directions to point to the picture showing "up," the student points to the picture showing "up."

Given a drawing of the position "in" and the question, "What position does this show?", the student says "in."

1.0 COMPETENCY Pre-Arithmetic

1.1 MODULE CLUSTER Arithmetic Vocabulary

1.13 MODULE Comparison Words (equal to, less than, greater than, higher, lower, tall, short, longer, shorter)

PURPOSE To provide the student with the skills for recognition of comparison words.

BEHAVIORAL OBJECTIVE

Outcome: The student will point to the drawing of a comparison which has been named.

Context: A series of five drawings portraying comparison words and verbal directions naming one of the comparison words.

Criterion: Recognition of 90% of the comparison words.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Peabody Language Development Kit, Level #P
246-4.

Drawings of comparison words.

SAMPLE TEST ITEM

Given a series of five drawings showing the comparisons taller, greater than, shorter, less than, and equal to, and given verbal directions to point to the picture showing "shorter," the student points to the picture showing "shorter."

1.0 COMPETENCY Pre-Arithmetic

1.1 MODULE CLUSTER Arithmetic Vocabulary (auditory, visual, and tactile comprehension)

1.14 MODULE Shapes (line, curved, straight, circle, square, rectangle, triangle, open shapes, closed shapes)

PURPOSE To provide the student with the skill for identifying and recognizing shapes.

BEHAVIORAL OBJECTIVES

Outcome: The student will point to a shape previously named.

Context: A series of ten shapes and verbal directions naming one of the shapes.

Criterion: Correct recognition of 90% of the shapes.

Outcome: The student will name a shape previously seen.

Context: Any printed shape on a flash card.

Criterion: 90% accuracy on four trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

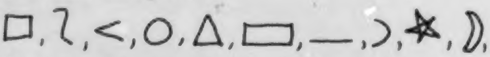
Peabody Language Development Kit, Level #P
171-1 & 2.

Peabody Language Development Kit, Level #1
shape cards — M.

See Appendix.

SAMPLE TEST ITEMS

Given a series of 10 shapes:



and verbal directions to point to the circle, the student points to the circle.

Given a square on a flash card and the question, "What is this shape?", the student correctly names the shape.

1.0 COMPETENCY Pre-Arithmetic

1.1 MODULE CLUSTER Arithmetic Vocabulary

1.15 MODULE Money words (penny, nickel, dime, quarter, dollar)

PURPOSE To provide the student with the skills for recognition and identification of money words.

BEHAVIORAL OBJECTIVES

Outcome: The student will point to the money which has been named.

Context: A series of five drawings portraying money and verbal directions naming the money.

Criterion: Recognition of 90% of the money terms.

Outcome: The student will name the money.

Context: Drawings of money presented on a flash card.

Criterion: Identification of 90% of the money terms.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Drawings of money.

Play with money.

Play store and exchange money for goods.

SAMPLE TEST ITEMS

Given drawings of a dime, dollar, nickel, quarter, penny, and verbal directions to point to the dollar, the student points to the dollar.

Given a drawing of a dime and verbal directions to name it, the student correctly names the money.

1.0 COMPETENCY Pre-Arithmetic

1.1 MODULE CLUSTER Arithmetic Vocabulary

1.16 MODULE Time words (night, day, noon, days, weeks, months, years, yesterday, today, tomorrow, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday, seconds, minutes, hours)

PURPOSE To provide the student with the skills for recognition of words which relate to time.

BEHAVIORAL OBJECTIVE

Outcome: The student will raise his hand when a time word is named.

Context: Time words presented orally.

Criterion: Recognition of 90% of the time words.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The student uses a calendar.

The student uses a clock.

The teacher uses everyday activities to familiarize the child with the words. For example, "We go to sleep at night," "We eat lunch at noon."

SAMPLE TEST ITEM

Given verbal directions to raise his hand when a time word is called and the word "night" presented orally, the student will raise his hand.

1.0 COMPETENCY Pre-Arithmetic

1.2 MODULE CLUSTER Rote Counting

1.21 MODULE Rote Counting

PURPOSE To provide the student with the skill to name numbers in order.

BEHAVIORAL OBJECTIVES

Outcome: The student will say the numbers from 1-10 in order.

Context: Verbal instructions from the teacher without any other stimuli.

Criterion: 100% accuracy in thirty seconds.

Outcome: The student will say the numbers from 11-20 in order.

Context: Verbal instructions from the teacher without any other stimuli.

Criterion: 80% accuracy in thirty seconds.

Outcome: The student will orally count to a specific number.

Context: A specific number verbally stated.

Criterion: 90% accuracy over four trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Have the student play the game of hide and seek.

Have the student sing "Ten Little Indians," "Hundred Bottles of Milk on the Wall" (sung to the tune of "Hundred Bottles of Beer on the Wall"), and "This Old Man."

Have the student recite the rhyme "One, Two, Buckle My Shoe."

See Appendix.

SAMPLE TEST ITEMS

Given verbal directions to count to 10, the student will orally count to 10.

Given verbal directions to count from 11 to 20, the student will orally count from 11 to 20.

Given verbal directions to count to 7, the student will orally count from 1 to 7.

1.0 COMPETENCY Pre-Arithmetic

1.3 MODULE CLUSTER Conservation

1.31 MODULE Conservation of Quantity

PURPOSE To provide the student with the skills for conservation of quantity.

BEHAVIORAL OBJECTIVE

Outcome: The student will identify two equal quantities as equal when presented in unequal form.

Context: Show the subject two identical glasses which have been filled to the same level with water and one other empty glass which is taller than and smaller in diameter than the other glasses. In the presence of the student, pour the water from one of the two identical glasses into the taller glass. Then ask, "If you were thirsty, which glass of water would you like?" After the student responds, ask why.

Criterion: 100% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The student changes the form of an object and reverses the change back to the original form, such as pouring water from a tall, skinny glass to a short, fat one.

The student watches the teacher take two objects of the same quantity and manipulate the objects so they appear identical and dissimilar in quantity. Take two balls of clay and flatten one so that they look different; flatten the other one so that they look the same. Roll up one so that they look different; roll up the other one so that they look the same.

The student will watch while the teacher manipulates physical objects and verbally explains the concept of conservation of quantity.

See Appendix.

SAMPLE TEST ITEMS

Given two pieces of 4 inch wire in identical coils and asked the question, "Which has more wire?", the student says, "Neither, they are the same." The teacher straightens out one of the wires and asks the student, "Now, which has more?" The student will say, "They are still the same."

Given two balls of clay in identical form and asked the question, "Which has more clay?", the student says, "Neither, they are the same." Then the teacher rolls one of the balls of clay into a hotdog shape, and asks the student "Why does this piece of clay (pointing to the hot dog shape) have more clay?" The student will respond that it does not, and they are both the same.

Given two identical glasses filled to the same level with water, and another glass which is taller and smaller in diameter than the other two glasses, and asked the question, "Which of the two glasses has more?", the student will respond that both are the same. The teacher then pours the water from one glass into the taller glass and asks, "Now, which glass has more?" The student will respond that both are the same.

2.0 COMPETENCY Arithmetic

2.01 MODULE CLUSTER Rational Counting

2.011 MODULE Rational Counting

PURPOSE To provide the student with the skills for rational counting.

BEHAVIORAL OBJECTIVES

Outcome: The student will orally count a set of objects (1-10 objects).

Context: A set of concrete objects with verbal directions to count the set.

Criterion: 100% accuracy over three trials.

Outcome: The student will orally count a subset of objects.

Context: A set of concrete objects with verbal directions to count the specific subset of a general set.

Criterion: 100% accuracy over three trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Developmental Learning Materials. *Moving up in numbers,* Blue, Cards 1-10.

Have the student participate in such songs and rhymes as "Ten Little Indians," "Hundred Bottles of Milk on the Wall" (sung to the tune of "Hundred Bottles of Beer on the Wall"), and "This Old Man."

See Appendix.

SAMPLE TEST ITEMS

Given a set of six cars and verbal directions to count the cars out loud, the student will count from one to six.

Given verbal directions to count five cars from a set of fifteen cars, the student will count five cars.

2.0 COMPETENCY Arithmetic

2.02 MODULE CLUSTER Conservation of Number

2.021 MODULE Sorting.

PURPOSE To provide the student with the skills for sorting.

BEHAVIORAL OBJECTIVES

Outcome: The student will sort by removing a specified subset from a general set.

Context: A set of concrete objects with a subset presented with verbal directions giving one common characteristic (such as size, shape, or color).

Criterion: 100% accuracy over three trials.

Outcome: The student will sort by removing a specified subset from a general set.

Context: A set of concrete objects with a subset presented with verbal directions giving two common characteristics.

Criterion: 100% accuracy over three trials.

Outcome: The student will sort by removing a specified subset from a general set.

Context: A set of concrete objects with a subset presented with verbal directions giving three common characteristics.

Criterion: 100% accuracy over three trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Old Maid card game.

Go Fishing card game.

Sorting box.

See Appendix.

SAMPLE TEST ITEMS

Given a set of five blocks, three balls, and one triangle, the student will correctly select the five blocks, upon the verbal directions, "Give me all the blocks."

Given a set containing three red balls, three blue balls, and three green blocks, the student will correctly select the three red balls upon the verbal directions, "Give me the red balls."

Given a set of three red blocks with stars on them, three plain red balls, three blue balls with stars on them, and three blue balls, the student will correctly select the three blue balls with stars when given the verbal directions, "Give me the blue balls with stars on them."

2.0 COMPETENCY Arithmetic

2.02 MODULE CLUSTER Conservation of Number

2.022 MODULE Seriation

PURPOSE To provide the student with the skills for ordering.

BEHAVIORAL OBJECTIVES

Outcome: The student will place objects in order according to size.

Context: Four objects of graduated size, such as four balls, presented with verbal directions to place in order from smallest to largest.

Criterion: 100% accuracy over three trials.

Outcome: The student will place sets of objects in order according to quantity.

Context: Three sets of objects of different quantities, with verbal directions to order from smallest to largest. For example, a set of four balls, a set of five balls, and a set of six balls.

Criterion: 100% accuracy over three trials.

Outcome: The student will place written numbers in order.

Context: Three flash cards of different numbers, consecutively numbered on the numberline, presented with verbal directions to place in order from smallest to largest.

Criterion: 100% accuracy over three trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Instruction should start with two objects with large differences; gradually increase the number of objects and decrease the differences in size.

See Appendix.

SAMPLE TEST ITEMS

Given four balls of graduated size in a scrambled order and verbal directions, "Put these balls in order from smallest to largest," the student will place the balls from smallest to largest order.

Given six blocks, three blocks, and ten blocks, and verbal directions to place the sets in order from smallest to largest, the student will correctly place the sets in order from smallest to largest.

Given flash cards of the numbers 7, 2, and 8, and verbal directions to place the numbers in order from smallest to largest, the student will correctly place the numbers in the order of 2, 7, and 8.

2.0 COMPETENCY Arithmetic

2.02 MODULE CLUSTER Conservation of Number

2.023 MODULE Classification

PURPOSE To provide the student with the skills for classifying.

BEHAVIORAL OBJECTIVE

Outcome: The student will classify a subset by removing a subset with common attributes from a general set.

Context: A set of concrete objects with subsets presented with verbal directions to remove the subsets from the general set. For example, "Place all the things that belong together in this box."

Criterion: 100% accuracy over three trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The teacher will give the student a group of objects in which a subset can be extracted. The first subset to be removed should have an obvious common characteristic. For example, given a group of marbles (one red, one yellow, one green, four blue) and verbal directions, "Remove all the marbles that belong together," the student will remove the subset of marbles with a common characteristic.

Given a group of coins (i.e., five pennies, one dime, one quarter, one half dollar) and verbal directions, "Remove all the coins that belong together," the student will remove the subset of coins with a common characteristic.

Given a group of buttons of different colors, shapes, sizes, etc., and verbal directions, "Remove all the buttons that belong together," the student will remove a subset of buttons that share a common characteristic. After the student removes the subset, the teacher will return the subset of buttons to the remaining buttons, and then ask the child again to "Remove another group of buttons that belong together."

SAMPLE TEST ITEM

Given a set of twelve dolls (three boys in blue, three boys in red, three girls in blue, and three girls in red) and the verbal directions, "Put some things that belong together over here," the student correctly separates one subset.

2.0 COMPETENCY Arithmetic

2.02 MODULE CLUSTER Conservation of Number

2.024 MODULE Labeling Sets

PURPOSE To provide the student with the skills for labeling sets.

BEHAVIORAL OBJECTIVE

Outcome: The student will match by pointing to a written numeral and its appropriate set.

Context: A concrete set of objects and a numeral on a flash card presented with verbal directions to match the appropriate numeral to the appropriate set.

Criterion: 100% accuracy over four trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Have the student work with locking numbers.

Involve the student in activities with playing cards.

Involve the student in activities with number readiness posters.

SAMPLE TEST ITEM

Given three pencils and flash cards of the numerals 1-10 with verbal directions to point to the numeral which shows how many pencils there are, the student correctly points to the numeral three.

2.0 COMPETENCY Arithmetic

2.02 MODULE CLUSTER Conservation of Number

2.025 MODULE One-to-One Correspondence

PURPOSE To provide the student with the skills for one-to-one correspondence.

BEHAVIORAL OBJECTIVES

Outcome: The student will demonstrate he has the concept of one-to-one correspondence between two equal sets by physically matching an object of one set to an object of another set.

Context: Two equal sets of objects, with verbal directions to match the objects.

Criterion: 100% accuracy over three trials.

Outcome: The student will demonstrate he has the concept of one-to-one correspondence between two unequal sets by physically matching an object of one set to an object of another set, and stating which set has more, and which has less.

Context: Two unequal sets of objects, with verbal directions to match the objects and state which is less and which is more.

Criterion: 100% accuracy over three trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The teacher will provide the student with six cups and six buttons. Place the six cups in a row and the buttons in a pile nearby. Ask the student to set one button for each cup and then to check his work by dropping each button into a cup. The buttons are then removed and put in a pile. Ask the student if there is still the same number of buttons and cups or if there are more buttons or more cups. This procedure may then be repeated, varying the objects.

The teacher gives the student a sheet of paper with six dolls on it. He tells the student to draw a hat on each doll. The teacher asks the student if there is the same number of dolls and hats.

The teacher gives the student a sheet of paper with an equal number of dolls and hats, with the dolls on one side of the paper and the hats on the other. The student draws a line from one doll to one hat. The teacher asks the student if there is the same number of dolls and hats.

The teacher gives the student a sheet of paper with four horses on one side and six saddles on the other. The student draws a line from one horse to one saddle. The teacher asks if there is the same number of saddles and horses.

See Appendix.

SAMPLE TEST ITEMS

Given two sets of four balls each, the student will match all balls from one set with all balls from the other set, demonstrating the concept of one-to-one correspondence.

Given a sheet of paper with five cats on one side and six mice on the other, the student will draw a line from the cats to the mice and name correctly which set has more and which has less.

2.0 COMPETENCY Arithmetic

2.02 MODULE CLUSTER Conservation of Number

2.026 MODULE Recognition of the Empty Set

PURPOSE To provide the student with the skills to recognize the empty set (zero).

BEHAVIORAL OBJECTIVE

Outcome: The student will point to the box containing zero objects.

Context: Three boxes, each containing a different number of objects, with one containing zero objects, presented with verbal directions to point to the box containing zero objects.

Criterion: 100% accuracy over three trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The teacher will present three balls and ask the student, "How many balls do I have?" After the student answers three, the teacher takes one away and asks, "How many balls do I have now?" The student answers two and the teacher then takes away another ball, asking the student, "How many balls do I have now?" The student replies, "One." Then the teacher takes away the last ball and asks the student, "How many balls do I have now?" The child then replies, "Zero."

The same procedure can be used with edible objects having the student eat them until there are none left (i.e., cookies, popcorn, candy).

SAMPLE TEST ITEM

Given three boxes, one containing two objects, one containing five objects, and one containing no objects, and the verbal directions to point to the box with zero objects in it, the student correctly points to the box with zero objects.

2.0 COMPETENCY Arithmetic

2.02 MODULE CLUSTER Conservation of Number

2.027 MODULE Identification of the Numeral Zero

PURPOSE To provide the student with the skills for identifying the numeral zero.

BEHAVIORAL OBJECTIVE

Outcome: The student will name the numeral zero.

Context: The numeral zero written on a chalk board with verbal directions, "What is this number?"

Criterion: 100% accuracy over three trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The student uses the Language Master and Cards.

The student plays number bingo.

The teacher shows the student the numeral zero and says, "This is the number zero."

The teacher has the student paste dry peas on a paper number zero, and then has the student wear the number on a string around his neck.

See Appendix.

SAMPLE TEST [illegible]

Given the numeral zero written on a chalk board with the verbal directions, "What is this number?", the student correctly replies, "Zero."

2.0 COMPETENCY Arithmetic

2.02 MODULE CLUSTER Conservation of Number

2.028 MODULE Recall and Reproduction of Zero

PURPOSE To provide the student with the skills for recall and reproduction of the numeral zero.

BEHAVIORAL OBJECTIVE

Outcome: The student will write the numeral zero.

Context: Verbal directions telling the student to write the numeral zero.

Criterion: 100% accuracy over three trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Flash card numeral zero.

Kinesthetic numeral cards.

Number line.

The student should practice writing the numeral while looking at the numeral.

SAMPLE TEST ITEM

Given verbal directions to write the numeral zero, the student will write the numeral using paper and pencil.

2.0 COMPETENCY Arithmetic

2.03 MODULE CLUSTER Fractional Parts

2.031 MODULE Recognition of Fractional Parts (half, quarter, third)

PURPOSE To provide the student with the skills for recognition of fractional parts.

BEHAVIORAL OBJECTIVE

Outcome: The student will tell how many of a given fractional part are needed to make its whole.

Context: A whole object divided into given fractional parts and the given fractional part with verbal directions to tell how many of the parts make up the whole.

Criterion: 100% accuracy over three trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The teacher takes an apple and cuts it in half in front of the student. The teacher then asks the student how many pieces there are in the apple.

The teacher draws a square on the chalk board and then draws lines dividing it into quarters. He asks the student how many parts there are in the square.

See Appendix.

SAMPLE TEST ITEM

Given a third of a circle, and a circle divided into three sections with verbal directions to tell how many of the sections are needed to make a whole, the student will correctly answer three.

2.0 COMPETENCY Arithmetic

2.04 MODULE CLUSTER Place Value

2.041 MODULE Units Place (Ones)

PURPOSE To provide the student with the skills for identifying the value that a particular unit place (ones) holds.

BEHAVIORAL OBJECTIVES

Outcome: The student will point to the units column.

Context: A written multi-digit number presented with verbal directions to point to the units place.

Criterion: 100% accuracy over three trials.

Outcome: The student will name the value of the digit in the units column.

Context: A written multi-digit number presented with verbal directions to name the value of the digit in the units column. For example, "How many ones are in the units column?"

Criterion: 100% accuracy over three trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Have the student work with the place value chart/place value paper.

Have the student work with cuisenaire rods.

SAMPLE TEST ITEMS

Given the number 463 and verbal directions to point to the units column, the student will point to the three.

Given the number 56 and verbal directions to tell how many ones are in the units column, the student will correctly answer six.

2.0 COMPETENCY Arithmetic

2.04 MODULE CLUSTER Place Value

2.042 MODULE Tens Place

PURPOSE To provide the student with the skills for identifying the value that a particular tens place holds.

BEHAVIORAL OBJECTIVES

Outcome: The student will point to the tens column.

Context: A written multi-digit number presented with verbal directions to point to the tens place.

Criterion: 100% accuracy over three trials.

Outcome: The student will name the value of the digit in the tens column.

Context: A written multi-digit number presented with verbal directions to name the value of the digit in the tens column. For example, "How many tens are in the tens column?"

Criterion: 100% accuracy over three trials.

Outcome: The student will name the value of the digit in the tens place in terms of both ones and tens.

Context: A written multi-digit number presented with verbal directions to name the value of the digit in the tens column in terms of ones and tens. For example, "How many tens are here?" (the teacher points to the tens column), and "How many ones are here?" (the teacher points to the tens column).

Criterion: 100% accuracy over three trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Have the student work with a place value chart.

Have the student work with place value paper.

Have the student work with cuisenaire rods.

SAMPLE TEST ITEMS

Given the number 937 and verbal directions to point to the tens column, the student will point to the three.

Given the number 71 and verbal directions to tell how many tens are in the tens column, the student will correctly answer seven.

Given the number 62 and an explanation that there are six tens in the tens column, the student will tell how many ones are in the six tens, when asked.

2.0 COMPETENCY Arithmetic

2.04 MODULE CLUSTER Place Value

2.043 MODULE Hundreds Place

PURPOSE To provide the student with the skills for identifying the value that a particular hundreds place holds.

BEHAVIORAL OBJECTIVES

Outcome: The student will point to the hundreds column.

Context: A written multi-digit number presented with verbal directions to point to the hundreds place.

Criterion: 100% accuracy over three trials.

Outcome: The student will name the value of the digit in the hundreds column.

Context: A written multi-digit number presented with verbal directions to name the value of the digit in the hundreds column. For example, "How many hundreds are in the hundreds column?"

Criterion: 100% accuracy over three trials.

Outcome: The student will name the value of the digit in the hundreds place in terms of ones, tens, and hundreds.

Context: A written multi-digit number presented with verbal directions to name the value of the digit in the hundreds column in terms of ones, tens, and hundreds. For example, "How many hundreds are here?" (the teacher points to the hundreds column); "How many tens are here?" (the teacher points to the tens column); "How many ones are here?" (the teacher points to the ones column).

Criterion: 100% accuracy over three trials.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Have the student work with the place value chart.

Have the student work with place value paper.

Have the student work with cuisenaire rods.

See Appendix.

SAMPLE TEST ITEMS

Given the number 6,430 and verbal directions to point to the hundreds column, the student will point to the four.

Given the number 363 and verbal directions to tell how many hundreds are in the hundreds column, the student will correctly answer three.

2.0 COMPETENCY Arithmetic

2.05 MODULE CLUSTER Addition

2.051 MODULE Single Digit Addition

PURPOSE To provide the student with the skills for addition of a one digit number plus a one digit number.

BEHAVIORAL OBJECTIVE

Outcome: The student will add a one digit number plus a one digit number.

Context: Written answers to ten addition problems.

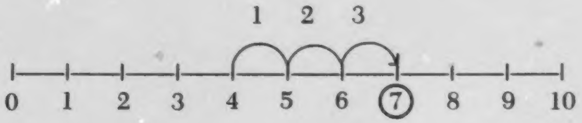
Criterion: 90% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The sample problem for this module is 4 + 3 = 7. Methods for solving the sample problem:

Set Method — Give the student four marbles; ask the student to count the marbles and tell you how many there are. Give the student three marbles and ask him to count the marbles and tell you how many there are. Then ask the student to combine all the marbles and count them. Review the problem for the student explaining to him that 4 + 3 = 7.

Number Line Method — On a number line, demonstrate the problem 4 + 3 = 7 to the student by starting at 4 and taking a trip of 3 to the right, counting 1, 2, 3, as you ascend the number line, to give you the answer 7.



See Appendix.

Developmental Learning Materials. *Moving up in numbers*, Blue, Cards 11-20; Red, Cards 11-16.

McCormick-Mathers Pub. Co. *Mathematics laboratory,* Addition Level 1, Red, Cards 1, 2, 5, 6.

Singer-Random House. *Individualized mathematics,* Block 1, Cards 1A & B, 2 A & B, 3 A & B, 4 A & B, 5 A & B.

SAMPLE TEST ITEMS

5	3	4	8
+ 2	+ 6	+ 3	+ 5

2.0 COMPETENCY Arithmetic

2.05 MODULE CLUSTER Addition

2.052 MODULE Column Addition

PURPOSE To provide the student with the skills for addition of one digit numbers.

BEHAVORIAL OBJECTIVE

Outcome: The student will add any quantity of one digit numbers.

Context: Written answers to ten problems of addition.

Criterion: 90% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Set method of addition using blocks (see Module 2.051 Single-Digit Addition).

Number line method (see Module 2.051 Digit Addition)

When presented with the problem:

$$\begin{array}{r} 5 \\ 1 \\ \underline{+2} \end{array}$$

The student will solve the problem by adding the first two numbers thinking the sum, and adding the third number to that sum. For example:

$$\begin{array}{rl} \left.\begin{array}{r} 5 \\ 1 \end{array}\right\} \rightarrow & \text{(1) think 6} \\ & \text{(2) add 2 to the 6} \\ \underline{+2} & \text{(3) write down the sum} \end{array}$$

If the student cannot do this in his head, he may need to write the sum down as he adds. However, this crutch should be removed eventually. This can be gradually extended to include more numbers in a column.

Developmental Learning Materials. *Moving up in numbers*, Red, Cards 17-20.

McCormick-Mathers Pub. Co. *Mathematics laboratory*, Addition Level 1, Red, Cards 12-17; Blue, Cards 2, 14.

SAMPLE TEST ITEMS

6	2	9	3
4	5	2	7
+ 4	+ 6	5	4
		+ 4	+ 6

2.0 COMPETENCY Arithmetic

2.05 MODULE CLUSTER Addition

2.053 MODULE A Two Digit Number Plus a One Digit Number

PURPOSE To provide the student with the skills for addition of a two digit number plus a one digit number without regrouping.

BEHAVIORAL OBJECTIVE

Outcome: The student will add a two digit number plus a one digit number without regrouping.

Context: Written answers to ten addition problems.

Criterion: 90% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Set method of addition (See Module 2.051)

Number line method (See Module 2.051)

Relating the problem to the fundamental facts. Show the student how $15 + 2 = 17$ is related to $5 + 2 = 7$. Show the student how $5 + 2 = 7$, $25 + 2 = 27$, $35 + 2 = 37$, $45 + 2 = 47$, $55 + 2 = 57$, etc. relate. This pattern will aide the student in adding similar problems.

Singer-Random House. *Individualized mathematics,* Block 1, Cards 1 C #1, 2, 3, 6, 7-9, 12, 14, 16-20; 2 C #1, 2, 5-8, 11, 13, 14, 17-20; 3 C #1, 3-5, 7, 10-12, 14-16, 18-20; 4 C #1, 3, 5, 7, 9, 11-17, 19, 20; 5 C #2, 4-7, 9-11, 13, 14, 16-19;
Block 4, Cards 1 A #2, 4-8, 10, 11, 13, 14, 16, 17, 19, 20; 2 A #2, 4-8, 10, 11, 13, 14, 16, 17, 19, 20; 3 A #1, 3-5, 7, 9, 10, 12-14, 16-18, 20; 4 A #2-4, 6, 7, 9, 11-15, 17, 18, 20; 5 A #2, 3, 5, 6, 8-10, 12, 14, 16-20.

SAMPLE TEST ITEMS:

$$\begin{array}{r}13\\+\ 5\\\hline\end{array}\qquad\begin{array}{r}22\\+\ 7\\\hline\end{array}\qquad\begin{array}{r}10\\+\ 3\\\hline\end{array}\qquad\begin{array}{r}11\\+\ 5\\\hline\end{array}$$

2.0 COMPETENCY Arithmetic

2.05 MODULE CLUSTER Addition

2.054 MODULE Two Digit Addition

PURPOSE To provide the student with the skills for addition of a two digit number plus a two digit number without regrouping.

BEHAVIORAL OBJECTIVE

Outcome: The student will add a two digit number plus a two digit number without regrouping.

Context: Written answers to ten problems of addition.

Criterion: 90% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Have the student use money/place value chart.

The student can use abacus.

Expanded Notation — Present the student with the problem

$$\begin{array}{l} 2 \text{ tens } + 3 \text{ ones} \\ \underline{4 \text{ tens } + 5 \text{ ones}} \end{array}$$

asking him to solve for tens and ones. If the student has any trouble with this problem the teacher may need to refer him to an abacus or place value chart. The problem can then be presented to the student to solve in the following manner:

$$\begin{array}{l} 20 + 3 \\ \underline{40 + 5} \end{array}$$

arriving at the answer 60 + 8. The student then adds the 60 + 8 to obtain the answer 68.

Singer-Random House. *Individualized mathematics*, Block 1, Cards 5 D #1, 2, 5, 9, 12, 13, 15, 19.

SAMPLE TEST:

36	27	13	35
+ 51	+ 50	+ 24	+ 14

2.0 COMPETENCY Arithmetic

2.05 MODULE CLUSTER Addition

2.055 MODULE A Two Digit Number Plus a One Digit Number

PURPOSE To provide the student with the skills for addition of a two digit number plus a one digit number with or without regrouping.

BEHAVIORAL OBJECTIVE

Outcome: The student will add a two digit number plus a one digit number with or without regrouping.

Context: Written answers to ten addition problems.

Criterion: 90% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The sample test problem for this module is 17 + 6 = 23. Methods of solving the sample problem are:

Place Value Chart — Present the student with a place value chart representing the number 17 with one ten-marker and seven one-markers. Have the student add six one-markers to the ones. The student then trades in ten one-markers for a ten-marker and adds the ten-marker to the other tens. The student writes the new number represented on the place value chart by counting the ten-markers and the one-markers: 23.

Expanded Notation — Present the problem in the form

$$\begin{array}{r} 1 \text{ ten} + 7 \text{ ones} \\ \underline{+ 6 \text{ ones}} \end{array}$$

and arrive at the answer 1 ten + 13 ones = 2 tens + 3 ones. Explain to the child that he trades in 10 ones for one ten.

Carrying — Present the problem in the form $\begin{array}{r} 17 \\ \underline{+\ 6} \end{array}$

Have the student add the units column obtaining the answer 13. The student writes the answer as follows, placing the 1 above the tens column:

$$\begin{array}{r} 1\\ 17\\ +\ 6\\ \hline 3\end{array}$$

Review for the student that the 1 in 13 is a ten and should be placed in the tens column. Then have the student add the tens column obtaining the answer

$$\begin{array}{r} 1\\ 17\\ +\ 6\\ \hline 23\end{array}$$

Here, the teacher needs to explain that in solving a problem you begin with the units column and move to the tens. Addition is done by working right to left and top to bottom when the problem is presented in vertical form.

Singer-Random House. *Individualized mathematics*, Block 1, Cards 1 E, #1, 2, 4-7, 9, 12, 17; 5 E, #1-4, 7-10, 15, 16.

McCormick-Mathers Pub. Co. *Mathematics laboratory*, Addition Level 1, Red, Cards 8 & 9; Blue, Card 3.

SAMPLE TEST ITEMS

$$\begin{array}{r} 17\\ +\ 6\\ \hline \end{array} \qquad \begin{array}{r} 14\\ +\ 7\\ \hline \end{array} \qquad \begin{array}{r} 25\\ +\ 9\\ \hline \end{array} \qquad \begin{array}{r} 12\\ +\ 9\\ \hline \end{array}$$

2.0 COMPETENCY Arithmetic

2.05 MODULE CLUSTER Addition

2.056 MODULE Two Digit Addition

PURPOSE To provide the student with the skills for addition of a two digit number plus a two digit number, with or without regrouping.

BEHAVIORAL OBJECTIVE

Outcome: The student will add a two digit number plus a two digit number.

Context: Written answers to ten addition problems.

Criterion: 90% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The sample problem for this module is $\begin{array}{r} 14 \\ \underline{+\,37} \end{array}$

Methods for solving the problem are:

Carrying Method — The problem is solved in the same manner as two digit plus one, digit with regrouping, except the student must add three numbers down the tens column (1 in 14, 3 in 37, and 1 in 11 (4 + 7)). See Module 2.053.

Expanded Notation — Present the problem in the form

$$\begin{array}{l} 1 \text{ ten } + 4 \text{ ones} \\ \underline{3 \text{ tens } + 7 \text{ ones}} \end{array}$$

for the student to solve. He obtains the answer 4 tens + 11 ones. The student then exchanges 10 ones for 1 ten obtaining the answer 5 tens + 1 one. The student places the numbers together as 51.

Developmental Learning Materials. *Moving up in numbers*, Green, Cards 1-10.

McCormick-Mathers Pub. Co. *Mathematics laboratory*, Addition Level 1, Red, Card 6; Blue, Card 6.

Singer-Random House. *Individualized mathematics*, Block 1, Cards 3 E, #1, 4, 10, 11, 14, 15, 19.

SAMPLE TEST ITEMS

$$\begin{array}{r} 17 \\ \underline{+\,15} \end{array} \qquad \begin{array}{r} 25 \\ \underline{+\,19} \end{array} \qquad \begin{array}{r} 99 \\ \underline{+\,66} \end{array} \qquad \begin{array}{r} 87 \\ \underline{+\,23} \end{array}$$

2.0 COMPETENCY Arithmetic

2.05 MODULE CLUSTER Addition

2.057 MODULE A Three Digit Number Plus a One Digit, Two Digit, or Three Digit Number

PURPOSE To provide the student with the skills for addition of a three digit number plus a one digit, two digit, or three digit number.

BEHAVIORAL OBJECTIVE

Outcome: The student will add a three digit number plus a one digit, two digit, or three digit number.

Context: Written answers to ten addition problems.

Criterion: 90% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The sample problem for this module is $\begin{array}{r}536\\ \underline{+\ 79}\end{array}$

Methods for solving this problem are:

Place Value Chart (See Module 2.053)

Present the problem in the form $\begin{array}{r}536\\ \underline{+\ 79}\end{array}$. Remind the student that he should solve the problem by beginning in the units column, move to the tens column, and then to the hundreds column, carrying whenever necessary. Addition is always done by working right to left and top to bottom when the problem is presented in vertical form.

Developmental Learning Materials. *Moving up in numbers*, Green, Cards 16-20.

McCormick-Mathers Pub. Co. *Mathematics laboratory*, Addition Level 1, Red, Cards 21-24, 26-29; Blue, Card 13.

Singer-Random House. *Individualized mathematics*, Block 4, Cards 1 C, #2, 3, 6, 7, 9, 11, 13, 14, 19, 20; 1 E, #1, 3, 4, 6, 8, 9, 11, 13, 15, 17-19; 2 E, #3, 4, 6-8, 10, 12, 16-19; 3 C, #2, 4, 6, 8, 9, 11, 15, 17-19.

SAMPLE TEST ITEMS

$$\begin{array}{r}173\\ \underline{+\ \ 9}\end{array} \qquad \begin{array}{r}285\\ \underline{+\ 18}\end{array} \qquad \begin{array}{r}396\\ \underline{+254}\end{array} \qquad \begin{array}{r}121\\ \underline{+999}\end{array}$$

2.0 COMPETENCY Arithmetic

2.05 MODULE CLUSTER Addition

2.058 MODULE Any Digit Addition Including Column Addition

PURPOSE To provide the student with the skills for addition of any quantity of any digit numbers.

BEHAVIORAL OBJECTIVE

Outcome: The student will add any quantity of any digit.

Context: Written answers to ten addition problems.

Criterion: 90% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES:

The sample problem for this module is

$$\begin{array}{r}146\\235\\14\\\underline{4360}\end{array}$$

Methods for solving this problem are:

Column Addition — Explain to the student that he adds from top to bottom and right to left. Also, explain that numbers of the same place value are added together. If the student is confused by the ragged columns, have him use graph or place value paper.

Developmental Learning Materials, *Moving up in numbers,* Blue, Cards 11-20; Red, Cards 11-20; Green, Cards 1-20.

McCormick-Mathers Pub. Co. *Mathematics laboratory,* Addition Level 1, Blue, Card 19; Green, Level 2, Card 9.

Singer-Random House. *Individualized mathematics,* Block 1, Pretest 1 E, 2 D, 3 D, 4 D, Post Test; Block 4, Cards 1 D, 2 D, 3 C, 4 C, 4 D, Post Test; Block 6, Pretest 1 A, 1 B, 1 C, 1 D, 1 E, 2 A, 2 B, 2 A, 2 B, 2 C, 2 D, 2 E, 3 A, 3 B, 3 C, 3 D, 3 E, 4 A, 4 B, 4 C, 4 D, 4 E, 5 A, 5 B, 5 C, 5 D, 5 E, Post Test.

SAMPLE TEST ITEMS:

133	976	19	471	987	1486
+ 9	+ 13	888	125	235	+ 2657
		44	+ 137	+ 102	
		+ 514			

2.0 COMPETENCY Arithmetic

2.06 MODULE CLUSTER Subtraction

2.061 MODULE Single Digit Subtraction

PURPOSE To provide the student with the skills for subtraction of a one digit number from a one digit number.

BEHAVIORAL OBJECTIVE

Outcome: The student will subtract a one digit number from a one digit number.

Context: Written answers to ten subtraction problems.

Criterion: 90% accuracy.

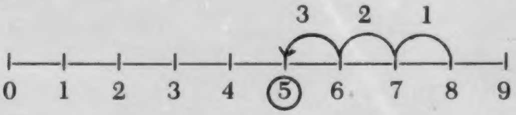
INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The sample problem for this module is $8 - 3 = 5$. Methods for solving this problem are:

Set Method — Give the student eight marbles; ask the student to count the marbles and tell you how many there are. Then ask the student to separate three marbles from the set, and have him count how many are left. Review the problem for the student explaining to him that $8 - 3 = 5$.

Comparison Method — Give the student a set of eight marbles and a set of three marbles. Then ask the student to match a marble from one set to a marble from the other set. Then ask the student how many more marbles are in the larger set. Review the problem for the student explaining to him there are five more marbles in the larger set and therefore $8 - 3 = 5$.

Number Line Method — On a number line, demonstrate the problem $8 - 3 = 5$ to the student by starting at 8 and taking a trip of 3 to the left, counting 1, 2, 3 as you descend the number line, to give you the answer 5.



See Appendix.

Developmental Learning Materials. *Moving up in numbers,* Red, Cards 1-10.

McCormick-Mathers Pub. Co. *Mathematics laboratory,* Subtraction Level 1, Red, Card 2.

Singer-Random House. *Individualized mathematics,* Block 2, Lesson 1A, 2A, 3A, 4A, 5A.

SAMPLE TEST ITEMS

$$\begin{array}{r} 9 \\ \underline{-\ 7} \end{array} \qquad \begin{array}{r} 5 \\ \underline{-\ 2} \end{array} \qquad \begin{array}{r} 7 \\ \underline{-\ 4} \end{array} \qquad \begin{array}{r} 8 \\ \underline{-\ 2} \end{array} \qquad \begin{array}{r} 5 \\ \underline{-\ 1} \end{array}$$

2.0 COMPETENCY Arithmetic

2.06 MODULE CLUSTER Subtraction

2.062 MODULE A Two Digit Number Minus a One Digit Number Without Regrouping

PURPOSE To provide the student with the skills for subtraction of a one digit number from a two digit number without regrouping.

BEHAVIORAL OBJECTIVE

Outcome: The student will subtract a one digit number from a two digit number without regrouping.

Context: Written answers to ten subtraction problems.

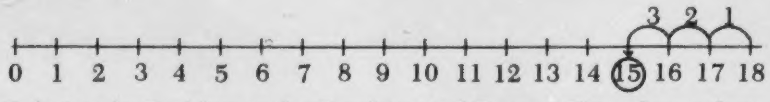
Criterion: 90% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The sample problem for this module is 18 – 3 = 15. Methods of solving the sample problem are:

Set Method — Give the student eighteen marbles; ask the student to count the marbles and tell you how many there are. Then ask the student to separate three marbles from the set, and have him count how many are left. Review the problem for the student explaining to him that 18 – 3 = 15.

Number Line Method — On a number line, demonstrate the problem 18 – 3 = 15 to the student by starting at 18 and taking a trip of 3 to the left, counting 1, 2, 3 as you descend the number line, to give the answer 15.



Relating the Problem to the Fundamental Facts — Show the student how 18 – 3 = 15 relates to 8 – 3 = 5. For example show the student the pattern between such problems as 8 – 3 = 5, 18 – 3 = 15, 28 – 3 = 25, 38 – 3 = 35, 48 – 3 = 45, 58 – 3 = 55, etc.

See Appendix.

SAMPLE TEST ITEMS:

15	19	27	38
– 3	– 5	– 2	– 7

2.0 COMPETENCY Arithmetic

2.06 MODULE CLUSTER Subtraction

2.063 MODULE A Two Digit Subtraction Without Regrouping

PURPOSE To provide the student with the skills for subtraction of a two digit number from a two digit number without regrouping.

BEHAVIORAL OBJECTIVE

Outcome: The student will subtract a two digit number from a two digit number without regrouping.

Context: Written answers to ten subtraction problems.

Criterion: 90% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The sample problem for this module is 39 − 15 = 24. Methods for solving this problem are:

Money — (dimes and pennies)

Present the student with three dimes and nine pennies explaining to him that this amount represents the 39¢ in the problem 39¢ − 15¢ = ______.

⑩ ⑩ ⑩ → dimes ①①①①①①①①①→ pennies

Have the student take away one dime and five pennies, explaining to him that this amount represents the 15¢.

Ask the student how much money is left.

This problem may also be demonstrated on paper, developing a higher level of abstraction. Example:

10¢ 10¢ 10¢ 10¢
1¢ 1¢ 1¢ 1¢ 1¢ 1¢ 1¢ 1¢ 1¢ − 1¢ 1¢ 1¢ 1¢ 1¢ =

10¢ 10¢ ~~10¢~~
1¢ 1¢ 1¢ 1¢ ~~1¢~~ ~~1¢~~ ~~1¢~~ ~~1¢~~ ~~1¢~~

See Appendix.

Problems — Provide the student with substraction problems to work, explaining the procedure of working from right to left (starting with the ones column and proceding to the tens column).

Developmental Learning Materials. *Moving up in numbers*, Orange, Card 19.

McCormick-Mathers Pub. Co. *Mathematics laboratory,* Subtraction Level 1, Red, Card 17.

SAMPLE TEST ITEMS

$$\begin{array}{rrrr} 29 \qquad & 99 \qquad & 45 \qquad & 57 \\ \underline{-\ 17} \qquad & \underline{-\ 39} \qquad & \underline{-\ 31} \qquad & \underline{-\ 34} \end{array}$$

2.0 COMPETENCY Arithmetic

2.06 MODULE CLUSTER Subtraction

2.064 MODULE A Two Digit Number Minus a One Digit Number With or Without Regrouping

PURPOSE To provide the student with the skills for subtraction of a one digit number from a two digit number with or without regrouping.

BEHAVIORAL OBJECTIVE

Outcome: The student will subtract a one digit number from a two digit number.

Context: Written answers to ten subtraction problems.

Criterion: 90% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The sample problem for this module is 35 − 8 = 27. Methods for solving this problem are:

Place Value Chart — Present the student with a place value chart representing the number 35 with 3 ten-markers and 5 one-markers. Have the student replace 1 ten-marker with 10 one-markers. Then have the student remove 8 ones, and state the new number represented on the place value chart.

Expanded Notation — Have the student break down the problem, 35 − 8 = 27, as follows:

$$\begin{array}{lrr} & 3 \text{ tens} & 5 \text{ ones} \\ \hline - & & 8 \text{ ones} \end{array}$$

Then have the student regroup the problem as follows, explaining to the student that you are taking one ten from the tens column and adding ten ones to the ones column;

$$\begin{array}{lrr} & 2 \text{ tens} & 15 \text{ ones} \\ - & & 8 \text{ ones} \\ \hline & 2 \text{ tens} & 7 \text{ ones} \rightarrow 27 \end{array}$$

Decomposition — In this step the student moves to solving problems in a more abstract manner. Present the student with the problem:

$$\begin{array}{r} 35 \\ \underline{-\ 8} \end{array}$$

If the preceding steps have been carefully developed the student should be able to think of 35 as 20 + 15 by taking one ten from the tens column and transferring ten ones to the ones column. The student may work the problem as follows:

$$\begin{array}{r} {\scriptstyle 2\,15} \\ 35 \\ -\;\;8 \\ \hline \end{array}$$

The student will then solve the problem by first subtracting the 8 from the 15 and then bringing down the 2.

* Note: When the problems have minuends ranging from 11-19, it is desirable for the student to relate to these problems as fundamental facts.

See Appendix.

Developmental Learning Materials. *Moving up in numbers*, Gray, Cards 1-10.

McCormick-Mathers Pub. Co. *Mathematics laboratory*, Subtraction, Level 1, Blue, Card 2.

Singer-Random House. *Individualized mathematics*, Block 2, Cards 1 C, 2 C, 3 C, 4 C, 5 C, Block 5, Cards 1 A, 2 A, 3 A & B, 4 A & B, 5 A.

SAMPLE TEST ITEMS

$$\begin{array}{r} 12 \\ -\,9 \\ \hline \end{array} \qquad \begin{array}{r} 16 \\ -\,3 \\ \hline \end{array} \qquad \begin{array}{r} 38 \\ -\,9 \\ \hline \end{array} \qquad \begin{array}{r} 41 \\ -\,1 \\ \hline \end{array}$$

2.0 COMPETENCY Arithmetic

2.06 MODULE CLUSTER Subtraction

2.065 MODULE Two Digit Subtraction

PURPOSE To provide the student with the skills for subtraction of a two digit number from a two digit number with or without regrouping.

BEHAVIORAL OBJECTIVE

Outcome: The student will subtract a two digit number from a two digit number.

Context: Written answers to ten subtraction problems.

Criterion: 90% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The sample problem for this module is 74 − 29 = 45. Methods for solving this problem are:

Place Value Chart — See Module 2.064.

Expanded Notation — See Module 2.064.

Decomposition — The student will solve the problem,

$$\begin{array}{r} 74 \\ \underline{-29} \end{array}$$

using the steps in Module 2.064, III-C. The teacher may need to instruct the student on working the problem through the tens column in the subtrahend, as follows:

$$\begin{array}{r} 74 \\ \underline{-29} \end{array}$$

*Note: Equal Addition always leads to solving a different problem. Instead of 74 − 29, the problem now is 84 − 39.

See Appendix (Abacus)

McCormick-Mathers Pub. Co. *Mathematics laboratory,* Subtraction Level 2, Card 2; Level 1, Red, Cards 18 & 19; Blue, Card 3.

Developmental Learning Materials. *Moving up in numbers,* Orange, Cards 1-11, 15.

SAMPLE TEST ITEMS

$$\begin{array}{rrrr} 57 \quad & 98 \quad & 77 \quad & 45 \\ \underline{-34} \quad & \underline{-79} \quad & \underline{-28} \quad & \underline{-31} \end{array}$$

2.0 COMPETENCY Arithmetic

2.06 MODULE CLUSTER Subtraction

2.066 MODULE A Three Digit Number Minus a One, Two, or Three Digit Number

PURPOSE To provide the student with the skills for subtraction of a one digit, two digit, or three digit number from a three digit number with or without regrouping.

BEHAVIORAL OBJECTIVE

Outcome: The student will subtract numbers of one digit, two digits and three digits from a three digit number.

Context: Written answers to ten subtraction problems.

Criterion: 90% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Decomposition — See Module 2.064

When a student begins to work subtraction problems involving a three-digit number the procedures for borrowing should be explained as follows:

1. Start the problem on the right with the ones column, subtracting the subtrahend from the minuend, borrowing from the tens column when necessary.
2. Then the student subtracts the subtrahend from the minuend in the tens column, this time borrowing from the hundreds column when necessary.
3. The student now either subtracts the subtrahend from the minuend in the hundreds column or brings down the remaining number.

Equal addition — See Module 2.065

Developmental Learning Materials. *Moving up in numbers*, Orange, Cards 12-15, 16-18, 20.

McCormick-Mathers Pub. Co. *Mathematics laboratory*, Subtraction Level 1, Red, Cards 20, 23, 21; Blue, Cards 5-8.

Singer-Random House. *Individualized mathematics*, Block 5, Card 3 C.

SAMPLE TEST ITEMS

391	274	516	535
− 7	− 95	− 106	− 149

2.0 COMPETENCY Arithmetic

2.06 MODULE CLUSTER Subtraction

2.067 MODULE Any Quantity of Any Digit Subtraction

PURPOSE To provide the student with the skills for subtraction of a number of any digit from a number of any digit with or without regrouping.

BEHAVIORAL OBJECTIVE

Outcome: The student will subtract numbers of any digit from numbers of any digit.

Context: Written answers to ten subtraction problems.

Criterion: 90% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Developmental Learning Materials. *Moving up in numbers,* Orange, Cards 1-20; Grey, Cards 1-10; Red, Cards 1-10.

McCormick-Mathers Pub. Co. *Mathematics laboratory,* Subtraction Level 1, Blue, Cards 10-13, 15-17.

Singer-Random House. *Individualized mathematics,* Block 2, Cards 1 D, 2 B, 2 D, 3 D, 4 D, 5 D; Block 5, Cards 1 B, C, D, E; 2 B, C, D, E; 3 B, C, D, E; 4 B, C, D, E; Block 7, entire block.

SAMPLE TEST ITEMS

$$\begin{array}{r} 703 \\ -\ 274 \\ \hline \end{array} \qquad \begin{array}{r} 535 \\ -\ 149 \\ \hline \end{array} \qquad \begin{array}{r} 831 \\ -\ 145 \\ \hline \end{array} \qquad \begin{array}{r} 400 \\ -\ 265 \\ \hline \end{array}$$

2.0 COMPETENCY Arithmetic

2.07 MODULE CLUSTER Multiplication

2.071 MODULE Single Digit Multiplication

PURPOSE To provide the student with the skills for multiplication of a one digit number times a one digit number.

BEHAVIORAL OBJECTIVE

Outcome: The student will multiply a one digit number times a one digit number.

Context: Written answers to ten problems of multiplication.

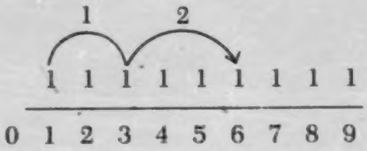
Criterion: 90% accuracy

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The sample problem for this module is 3 × 2. Methods of solving this sample problem are:

Set Method — Give the student three cardboard horses; ask the student to count the horses and tell you how many there are. Then give the student three riders to put on the horses and ask him to put them on the horses. Then ask the student how many horses and riders there are all together. Review the problem for the student explaining to him that 3 × 2 = 6. (There are two sets of three that equal six.)

Number Line Method — (This should be used for problems with sums less than 20.) On a number line, demonstrate the problem 3 × 2 = 6 to the student by starting at zero and take a trip of three twice, to give the answer 6.



Here you should explain that 2 × 3 = 3 × 2, by giving the student three groups of two to count.

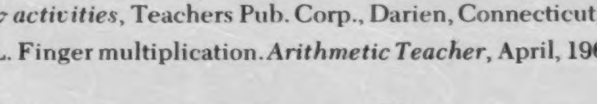
Abacus — Have the student set apart three beads on the abacus. Then have him put three more beads under the first group. Have him count all the beads. Review the problem for the student explaining to him that 3 × 2 = 6.

Addition Method — Have the student rewrite the problem 3 × 2 = 6 in the addition form, 3 + 3 = 6. Explain to the student that the equations are equal, and that repeated addition (3 + 3) is another way of solving the multiplication problem (3 × 2).

Property of zero — Give the student a group of four marbles. Ask him how many groups of four he has. He should reply one. Explain to the student that one group of four marbles could also be thought of as 4 × 1 = 4. Give the student a second set of four marbles and ask him how many groups of four he now has. The reply should be two. Then explain to the student that two groups of four marbles could also be thought of as 4 × 2 = 8. Then take away both groups of marbles and ask the student how many groups of four he now has. If the student replies none, the teacher should ask him for another response which will mean that there are no groups of four. The student should then reply zero. The teacher then explains that four marbles could also be thought of as 4 × 0 = 0. The teacher can then gradually introduce multiplication problems dealing with the property of zero in written form.

Multiplicative Identity of One — Give the student a group of three objects. Ask him how many times he has that set of three. Give him another set of five objects and ask him how many times he has that set of five and how many objects there are in that set. The teacher then explains that 5 × 1 = 5, or any number multiplied by one, equals that number.

Arrays — Give the student a block and have him divide the block into three rows across and two columns down. Then have the student count the number of squares in the block. Review the problem 3 × 2 = 6 for the student.



Skip Counting — Have the student count by threes and stop at the second number (for example: 3, 6). Review the problem 3 × 2 = 6 for the student.

Computer Fingers — See Wagner, Hosier, & Gilloley. *Arithmetic games & activities*, Teachers Pub. Corp., Darien, Connecticut, 1964.

Alger, L. Finger multiplication. *Arithmetic Teacher*, April, 1968, pp. 341-43.

Adler, I. *Magic house of numbers*, Signet Books.

Brandes, L. *Yes, math can be fun!*, J. Weston Walch.

Magic Nine — Have the student write from nine to zero down in one column and nine to zero up in a second column next to the first. The number at the bottom is equal to the equation 9 × 1, the second number is equal to the equation 9 × 2, and on up to the top number, equal to 9 × 10. For example:

90
81
72
63
54
45
36
27
18
09

Developmental Learning Materials. *Moving up in numbers,* Brown, Cards 1-7, 9, 10.

McCormick-Mathers Pub. Co. *Mathematics laboratory,* Multiplication Level 1, Red, Cards 1, 3, 5, 6; Blue, Card 1.

Singer-Random House. *Individualized mathematics.* Block 11, Cards 1 A, B, C: 2 A, B, C; 3 A, B, C; 5 A, B, C; Block 15, Pretest, 1 A, B, C; 2 A, B, C; 3 A, B, C; 4 A, B, C; 5 A, B, C; Block 17, Cards 1 A, B; 2 A, B; 3 A, B; 4 A, B; 5 A, B.

SAMPLE TEST ITEMS:

$$\begin{array}{r} 4 \\ \underline{\times 2} \end{array} \qquad \begin{array}{r} 5 \\ \underline{\times 6} \end{array} \qquad \begin{array}{r} 4 \\ \underline{\times 4} \end{array} \qquad \begin{array}{r} 9 \\ \underline{\times 3} \end{array}$$

2.0 COMPETENCY Arithmetic

2.07 MODULE CLUSTER Multiplication

2.072 MODULE Two Digit Number Times a One Digit Number Without Regrouping

PURPOSE To provide the student with the skills for multiplication of a two digit number times a one digit number without regrouping.

BEHAVIORAL OBJECTIVE

Outcome: The student will multiply a two digit number times a one digit number without regrouping.

Context: Written answers to ten problems of multiplication.

Criterion: 90% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The sample problem for this module is 23 × 3. Methods for solving this problem are:

Expanded Notation — Present the student with the problem:

$$\begin{array}{r} \text{2 tens and 3 ones} \\ \underline{\times \quad \text{3 ones}} \end{array}$$

for him to solve for tens and ones. Explain to the student that he will multiply the ones and then the tens by the three. Finally the problem is presented as follows:

$$\begin{array}{r} 23 \\ \underline{\times 3} \end{array}$$

for the student to solve, arriving at the answer 69.

Abacus — Have the student group three sets of 23 beads on the abacus and count them. Explain to the student that this is shown by the equation 23 × 3.

Cuisenaire Rods — Present the student with a collection of ten-unit rods and one-unit rods. Have the student select two ten-unit rods and three one-unit rods for the number 23. Then have the student make two more groups of 23 so that there are three groups of 23. Have the student count all of the ten-unit rods and all the one-unit rods to get the answer.

Developmental Learning Materials. *Moving up in numbers*, Brown, Cards 8, 11-15.

McCormick-Mathers Pub. Co. *Mathematics laboratory*, Multiplication Level 1, Red, Cards 19, 20; Blue, Card 3.

SAMPLE TEST ITEMS

$$\begin{array}{r} 11 \\ \underline{\times\ 8} \end{array} \qquad \begin{array}{r} 23 \\ \underline{\times\ 3} \end{array} \qquad \begin{array}{r} 19 \\ \underline{\times\ 1} \end{array} \qquad \begin{array}{r} 12 \\ \underline{\times\ 4} \end{array}$$

2.0 COMPETENCY Arithmetic

2.07 MODULE CLUSTER Multiplication

2.073 MODULE Two Digit Number Times a One Digit Number With or Without Regrouping

PURPOSE To provide the student with the skills for multiplication of a two digit number times a one digit number with or without regrouping.

BEHAVIORAL OBJECTIVE

Outcome: The student will multiply a two digit number times a one digit number with or without regrouping.

Context: Written answers to ten problems of multiplication.

Criterion: 90% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The sample problem for this module is: $\begin{array}{r} 45 \\ \times\ 2 \\ \hline \end{array}$

Methods for solving this problem are:

Abacus — Have the student set apart two groups of 45 and then count the beads for the total. Explain to him how this is equal to the equation 45 × 2 = 90.

Expanded Notation — Present the student with the problem:

$$\begin{array}{r} 4 \text{ tens and } 5 \text{ ones} \\ \times \qquad\quad 2 \text{ ones} \\ \hline \end{array}$$

and have the student multiply 2 × 5 and write down 10 and then multiply 2 × 4 and write down the 8. Have the student exchange the 10 ones for 1 ten. Have the student add the 1 ten to the 8 tens to make 9 tens, or 90.

Carrying — Present the problem: $\begin{array}{r} 45 \\ \times\ 2 \\ \hline \end{array}$

First he multiplies 2 × 5. He puts down the zero in the units column and carries the one in the tens column:

$$\begin{array}{r} {\scriptstyle 1} \\ 45 \\ \times\ 2 \\ \hline \end{array}$$

Then he multiplies 2 × 4 to obtain the answer 8. He adds the 1 that he carried to the 8 to obtain 9 and writes the 9 in the tens column:

$$\begin{array}{r} {\scriptstyle 1} \\ 45 \\ \times\ 2 \\ \hline 90 \end{array}$$

Developmental Learning Materials. *Moving up in numbers,* Brown, Cards 8, 11-20.

McCormick-Mathers Pub. Co. *Mathematics laboratory,* Multiplication Level 1, Red, Cards 22, 23; Blue, Card 4.

Singer-Random House. *Individualized mathematics,* Block 17, Cards 1 C, D, E; 2 C, D, E; 3 C, D, E; 4 C, D, E; 5 C, D, E.

SAMPLE TEST ITEMS

$$\begin{array}{r} 36 \\ \times\ 7 \\ \hline \end{array} \qquad \begin{array}{r} 17 \\ \times\ 6 \\ \hline \end{array} \qquad \begin{array}{r} 25 \\ \times\ 5 \\ \hline \end{array} \qquad \begin{array}{r} 37 \\ \times\ 3 \\ \hline \end{array}$$

2.0 COMPETENCY Arithmetic

2.07 MODULE CLUSTER Multiplication

2.074 MODULE Two Digit Multiplication

PURPOSE To provide the student with the skills for multiplication of a two digit number times a two digit number.

BEHAVIORAL OBJECTIVE

Outcome: The student will multiply a two digit number times a two digit number.

Context: Written answer to ten problems of multiplication.

Criterion: 90% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The sample problem for this module is:

$$\begin{array}{r} 43 \\ \times\ 21 \\ \hline \end{array}$$

Methods for solving this problem are:

Present the sample problem to the student. Have the student multiply the 1 times the 3 (in 43) and write the solution in the units column. Then, the student multiplies 1 times the 4 (in 43) and writes the solution in the tens column.

$$\begin{array}{r} 43 \\ \times\ 21 \\ \hline \textcircled{43} \end{array}$$

Next, the student multiplies the 2 (in 21) times the 3 (in 43), writing the solution below the first partial product in the following manner:

$$\begin{array}{rr} 4 & 3 \\ \times\ 2 & 1 \\ \hline 4 & 3 \\ \textcircled{6} & \\ \hline \end{array}$$

Have the student then multiply the 2 (in 21) times the 4 (in 43). This solution is written to the left of the first number in the second partial product:

$$\begin{array}{rrr} & 4 & 3 \\ \times & 2 & 1 \\ \hline & 4 & 3 \\ \textcircled{8} & 6 & \\ \hline \end{array}$$

The two partial products are added together to solve for the final product:

$$\begin{array}{r} 43 \\ \times\ 21 \\ \hline 43 \\ \textcircled{8}6 \\ \hline 903 \end{array}$$

McCormick-Mathers Pub. Co. *Mathematics laboratory,* Multiplication Level 1, Blue, Cards 6, 7.

SAMPLE TEST ITEMS

$$\begin{array}{r} 42 \\ \times\ 13 \\ \hline \end{array} \qquad \begin{array}{r} 20 \\ \times\ 36 \\ \hline \end{array} \qquad \begin{array}{r} 10 \\ \times\ 10 \\ \hline \end{array} \qquad \begin{array}{r} 67 \\ \times\ 11 \\ \hline \end{array}$$

2.0 COMPETENCY Arithmetic

2.07 MODULE CLUSTER Multiplication

2.075 MODULE A Three Digit Number Times a One Digit, Two Digit, or Three Digit Number.

PURPOSE To provide the student with the skills for multiplication of a three digit number times a one digit, two digit, or three digit number.

BEHAVIORAL OBJECTIVE

Outcome: The student will multiply a three digit number times a one digit, two digit, or three digit number.

Context: Written answers to ten problems of multiplication.

Criterion: 90% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The sample problem for this module is:

$$\begin{array}{r} 457 \\ \times 623 \\ \hline \end{array}$$

Methods for solving this problem are:

The student multiplies by the 3 (in 623) and writes down the product starting in the units column.

3 × 7 = 21, put down the 1 and carry the 2.
3 × 5 = 15, add the 2 to equal 17, put down the 7 and carry the 1.
3 × 4 = 12, add the 1 to equal 13, put down the 13.

$$\begin{array}{r} 457 \\ \times\ 623 \\ \hline 1371 \end{array}$$

The student multiplies by the 2 (in 623) and writes down the second partial product starting in the tens column.

2 × 7 = 14, put down the 4 and carry the 1.
2 × 5 = 10, add the 1 to equal 11, put down the 1 and carry the 1.
2 × 4 = 8, add the 1 to equal 9, put down the 9.

$$\begin{array}{r} 457 \\ \times\ 623 \\ \hline 1371 \\ \enclose{circle}{914} \end{array}$$

The student multiplies by the 6 (in 623) and writes down the product starting in the hundreds column.

6 × 7 = 42, put down the 2 and carry the 4.
6 × 5 = 30, add the 4 to equal 34, put down the 4 and carry the 3.
6 × 4 = 24, add the 3 to equal 27, put down the 27.

$$\begin{array}{r} 457 \\ \times\ 623 \\ \hline 1371 \\ 914 \\ \boxed{2742} \\ \hline \end{array}$$

The student adds the partial products, to solve for the final product:

$$\begin{array}{r} 457 \\ \times\ 623 \\ \hline 1371 \\ 914 \\ 2742 \\ \hline 284711 \end{array}$$

McCormick-Mathers Pub. Co. *Mathematics laboratory,* Multiplication Level 1, Blue, Cards 5, 12, 18, 21; Red, Cards 21, 24, 25.

SAMPLE TEST ITEMS:

$$\begin{array}{rrrr} 301 \quad & 169 \quad & 472 \quad & 713 \\ \underline{\times\ 9} \quad & \underline{\times\ 49} \quad & \underline{\times\ 248} \quad & \underline{\times\ 4} \end{array}$$

2.0 COMPETENCY Arithmetic

2.07 MODULE CLUSTER Multiplication

2.076 MODULE Any Digit Multiplication

PURPOSE To provide the student with the skills for multiplication of any digit number times any digit number.

BEHAVIORAL OBJECTIVE

Outcome: The student will multiply any digit number times any digit number.

Context: Written answers to ten problems of multiplication.

Criterion: 90% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Developmental Learning Materials. *Moving up in numbers*, Brown, Cards 8, 11-20.

McCormick-Mathers Pub. Co. *Mathematics laboratory*, Multiplication Level 1, Blue, Card 15, 16, 17, 23.

Singer-Random House. *Individualized mathematics*, Block 17, Cards 1 C, D, E; 2 C, D, E; 3 C, D, E; 4 C, D, E; 5 C, D, E.

SAMPLE TEST ITEMS

$$\begin{array}{r} 1624 \\ \times\ 395 \\ \hline \end{array} \qquad \begin{array}{r} 72 \\ \times\ 444 \\ \hline \end{array} \qquad \begin{array}{r} 51 \\ \times\ 30 \\ \hline \end{array} \qquad \begin{array}{r} 9 \\ \times\ 9 \\ \hline \end{array}$$

2.0 COMPETENCY Arithmetic

2.08 MODULE CLUSTER Division

2.081 MODULE Single Digit Division With No Remainder

PURPOSE To provide the student with the skills for dividing a one digit number by a one digit number with no remainder.

BEHAVIORAL OBJECTIVE

Outcome: The student will divide a one digit number by a one digit number with no remainder.

Context: Written answers to ten problems of division.

Criterion: 90% accuracy

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The sample problem for this module is 9 ÷ 3. Methods for solving this problem are:

Set Method — Present the student with nine cards and tell the student to deal out three hands of cards until all the cards are gone. Then have the student count how many cards are in each hand. Review the problem for the student saying, "We had nine cards and made three groups of cards with three cards in each group. So, 9 ÷ 3 = 3."

Repeated Subtraction on the Abacus — Have the student separate nine beads. Tell the student to take away three beads from the group of nine. After he has done this, tell the student to continue taking away three beads until no beads are left. Ask the student how many groups of three he had to take away to reach zero. Review the problem explaining that 9 ÷ 3 = 3.

Multiplication Method — Present the problem in the forms 9 ÷ 3 = 3 and 9 = 3 × 3. Read the equations saying, "Nine divided by three equals three, and nine equals three times three." Explain that a division problem can be written as a multiplication problem by changing the division sign to an equal sign and the equal sign to a multiplication sign. The student who knows his fundamental multiplication facts can successfully solve problems by this method. Students without a knowledge of the fundamental facts may find this a difficult method.

The Role of Zero and One in Division — Dividing by zero is impossible; example: $\cancel{0\overline{)5}}$ cannot be done.

Zero divided by any number equals zero; example: $\begin{array}{r} 0. \\ 3\overline{)0} \end{array}$

Any number divided by itself equals one; example: $\begin{array}{r} 1. \\ 9\overline{)9} \end{array}$

One divided into any number equals that number; example: $\begin{array}{r} 6 \\ 1\overline{)6} \end{array}$

These properties should be introduced to the student gradually, first by providing examples in the concrete and then moving to the abstract. This will eliminate much unnecessary learning for the student.

Developmental Learning Materials, *Moving up in numbers*, Purple, Card 1.

McCormick-Mathers Pub. Co. *Mathematics laboratory*, Division Level 1, Red, Card 1.

SAMPLE TEST ITEMS

$6 \div 3$ $\qquad 4\overline{)8}$ $\qquad 10 \div 5$ $\qquad 1\overline{)4}$

2.0 COMPETENCY Arithmetic

2.08 MODULE CLUSTER Division

2.082 MODULE A Two Digit Number by a One Digit Number with No Remainder

PURPOSE To provide the student with the skills for division of a two digit number by a one digit number with no remainder.

BEHAVIORAL OBJECTIVE

Outcome: The student will divide a two digit number by a one digit number with no remainder.

Context: Written answers to ten problems of division.

Criterion: 90% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The sample problem for this module is $3\,\overline{)36}$. Methods for solving this problem are:

*Note: The teacher may want to explain to the student that when the divisor is greater than the first number in the dividend, it is necessary to divide into the entire dividend. In the sample problem, the student will divide into each number rather than the whole dividend.

Set Method — See module 2.081.

Repeated Subtraction on the Abacus — See module 2.081.

Multiplication Method — Present the student with the problem $3\,\overline{)36}$. Explain to the student that he works only with the first number in the dividend, 36. Have the student determine what times 3 equals 3. The student writes the first partial quotient above the 3 in 36. Have the student continue by dividing the 3 into the 6, deciding what times 3 equals 6. The student writes the second partial quotient above the 6. The problem has been solved and can be read 36 divided by 3 equals 12.

Developmental Learning Materials. *Moving up in numbers*, Purple, Cards #2-12.

McCormick-Mathers Pub. Co. *Mathematics laboratory* Division Level 1, Blue Card 1; Red, Cards 1-4.

SAMPLE TEST ITEMS:

16 ÷ 1 $5\,\overline{)20}$ $9\,\overline{)18}$ $6\,\overline{)24}$

2.0 COMPETENCY Arithmetic

2.08 MODULE CLUSTER Division

2.083 MODULE Two Digit Division Without a Remainder

PURPOSE To provide the student with the skills for division of a two digit number by a two digit number without a remainder.

BEHAVIORAL OBJECTIVE

Outcome: The student will divide a two digit number by a two digit number without a remainder.

Context: Written answers to ten problems of division.

Criterion: 90% accuracy.

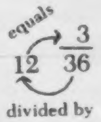
INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The sample problem for this module is 36 ÷ 12 = 3. Problems of division of a two digit number by a two digit number should be written as $12\overline{)36}$ to be solved. Methods for solving this problem are:

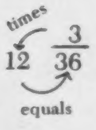
Set Method — This method is applicable when the numbers are small enough to work in the concrete (see module 2.081).

Repeated Subtraction Method — See module 2.081.

Multiplication Method — This method is worked in the same manner as module 2.081. However, the problem is written as $12\overline{)36}$. Arrows may be drawn to explain the process such as:



The student then checks the quotient by multiplying as the arrows indicate:



SAMPLE TEST ITEMS

$11\overline{)22}$ $13\overline{)39}$ $12\overline{)60}$ $10\overline{)70}$

2.0 COMPETENCY Arithmetic

2.08 MODULE CLUSTER Division

2.084 MODULE A Two Digit Number by a One Digit Number With or Without a Remainder

PURPOSE: To provide the student with the skills for division of a two digit number by a one digit number.

BEHAVIORAL OBJECTIVE

Outcome: The student will divide a two digit number by a one digit number.

Context: Written answers to ten problems of division.

Criterion: 90% accuracy.

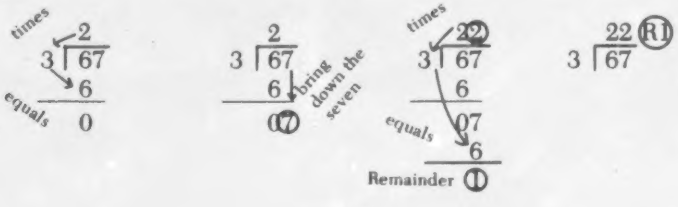
INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The sample problem for this module is $3\overline{)67}$. Methods for solving this problem are:

Set Method — See module 2.081. This method may be used with cards, blocks, or other manipulatives where the numbers are relatively small. When there is a remainder this should be written by the student as, "R 1, 2, or 3," etc.

Repeated Subtraction on the Abacus — See module 2.081. The student will take away three beads at a time until 1 bead remains. Explain to the student that this problem has a remainder of 1.

Multiplication Method (Long Division) — This method is worked in the same manner as module 2.081. However, present the problem in the form: $3\overline{)67}$. At this point, the teacher will introduce long division to the student, working the problem as follows:



The teacher should explain each step of the long division process to the student while working the problem. After the student has worked many problems in this manner and understands the process, he may be able to eliminate some of the steps, for example:

$$\begin{array}{r} 22\text{ R}1 \\ 3\overline{)67} \\ \underline{66} \\ 1 \end{array}$$

McCormick-Mathers Pub. Co. *Mathematics laboratory,* Division Level 1, Blue, Cards 1, 4, 5; Red, Cards 1-4, 10-12.

SAMPLE TEST ITEMS

$7\overline{)21}$ $6\overline{)19}$ $8\overline{)35}$ $7\overline{)48}$

2.0 COMPETENCY Arithmetic

2.08 MODULE CLUSTER Division

2.085 MODULE Two Digit Division With or Without Remainder

PURPOSE To provide the student with the skills for division of a two digit number.

BEHAVIORAL OBJECTIVE

Outcome: The student will divide a two number by a two digit number.

Context: Written answers to ten problems of division.

Criterion: 90% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The sample problem for this module is $12\overline{)49}$. Methods for solving this problem are:

Set Method — This can be used when the numbers are small enough to be worked using concrete materials. See module 2.081.

Repeated Subtraction Method — See module 2.081.

Multiplication Method (Long Division) — See module 2.084 — III C for long division procedures. The teacher will present the problem for the student to solve: $12\overline{)49}$. The student will need to estimate how many times 12 will go into 49. Assuming that the student estimates 4 as the quotient, this will be placed over the 9 in the dividend. He then multiplies 4 × 12, obtains the answer 48, and writes this under the dividend:

$$\begin{array}{r} 4 \\ 12\overline{)49} \\ 48 \end{array}$$

The student will then subtract to obtain the remainder (if any) and write the remainder in the quotient, as follows:

$$\begin{array}{r} 4\,\textcircled{\scriptsize R1} \\ 12\,\overline{)\,49} \\ \underline{48} \\ 1 \end{array}$$

If the student underestimates the answer (for example putting 3 in the quotient) he should be able to recognize his mistake when he obtains a remainder greater than the divisor, for example:

$$\begin{array}{r} 3 \\ 12\,\overline{)\,49} \\ \underline{36} \\ \textcircled{\scriptsize 13} \end{array}$$

If the student overestimates the answer (for example, putting 5 in the quotient) he will be unable to subtract the sum of 5 × 12 from the dividend, for example:

$$\begin{array}{r} 12\,\overline{)\,49} \\ \textcircled{\scriptsize 60} \end{array}$$

A smaller number in the quotient must then be tried.

SAMPLE TEST ITEMS

$13\,\overline{)\,17}$ $17\,\overline{)\,36}$ $12\,\overline{)\,48}$ $11\,\overline{)\,19}$

2.0 COMPETENCY Arithmetic

2.08 MODULE CLUSTER Division

2.086 A Three Digit Number by One, Two, or Three Digit Number

PURPOSE To provide the student with the skills for division of a three digit number by a one digit, two digit, or three digit number.

BEHAVIORAL OBJECTIVE

Outcome: The student will divide a three digit number by a one, two, or three digit number.

Context: Written answers to ten problems of division.

Criterion: 90% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

The sample problem for this module is $21\overline{)483}$. Methods for solving this problem are:

Multiplication Method (Long Division) — See Module 2.084 III-C for long division procedures. Present the sample problem for the student to solve:

$$21\overline{)483}$$

Again the student will need to estimate the quotient, working the problem through in long division. See Module 2.085 III-C for suggestions to help the student determine errors in estimation.

McCormick-Mathers Pub. Co. *Mathematics laboratory,* Division Level 1, Blue, Cards 7, 8, 9, 10; Red, Cards 15-22; Level II, Green, Cards 2, 3

SAMPLE TEST ITEMS:

$2\overline{)426}$ $\quad 3\overline{)303}$ $\quad 11\overline{)121}$ $\quad 178\overline{)716}$

2.0 COMPETENCY Arithmetic

2.08 MODULE CLUSTER Division

2.087 MODULE Any Quantity of Any Digit Division

PURPOSE To provide the student with the skills for division of any-digit number by any-digit number.

BEHAVIORAL OBJECTIVE

Outcome: The student will divide an any-digit number by an any-digit number, where the divisor is less than the dividend.

Context: Written answers to ten problems of division.

Criterion: 90% accuracy.

INSTRUCTIONAL RESOURCES / OPTIONS / ACTIVITIES

Estimation — Higher level division is a guessing process. The first step in solving a problem such as $29\overline{)74369}$ is to guess at the first partial quotient. Techniques for guessing exist, but frustration and errors are part of guessing. Frustration should be eliminated whenever possible. See Module 2.085 III-3 for suggestions to help the student determine errors in estimation. It will be necessary to use long division when solving division problems of this quantity. See Module 2.084.

McCormick-Mathers Pub. Co. *Mathematics laboratory,* Division Level I, Blue, Cards 1, 4, 5, 7-11, 17-19; Level I, Red, Cards 1-4, 10-12, 15-22; Level II, Green, Cards 2-9.

SAMPLE TEST ITEMS

$11\overline{)1463}$ $1\overline{)13}$ $7\overline{)14}$ $1\overline{)1}$

CLUSTER COMPETENCY TESTS

CLUSTER COMPETENCY TEST
AUDITORY CHANNEL

MODULES 1.011-1.031

Given the series "clips, tapes, fingers, books," spoken at the rate of one word per second, the student will repeat (not necessarily in order) the series after a pause of five seconds and after hearing the sentence, "We don't have any clothes to wear except what we have on us now."

Given the series 2, 7, 3, 0, spoken at the rate of one per second, the student will repeat the numbers in any order.

Given the series 3, 8, 4, 1, spoken at the rate of one per second, the student will repeat the numbers in any order after a pause of five seconds and after hearing the sentence, "Run out in the yard and catch the dog."

Given orally a nine-word sentence, "John is going to the store for some gum," the student will repeat the sentence.

Given orally the series of four numbers 3, 5, 6, 1, spoken at the rate of one per second, the student will repeat the numbers in sequence.

Given orally the series of three directions: "Fold your hands, scratch your head, stand up," the student will perform the required actions in sequence.

Given the story of the "Gingerbread Boy," presented orally, the student will verbally recall five details of the story.

CLUSTER COMPETENCY TEST

TACTILE CHANNEL

MODULES 1.041-1.064

1. Given the three-dimensional (3-D) number 8 to feel, the student will name it without visual or auditory clues.
2. Given the 3-D number 1 to feel, the student will name the number without visual or auditory clues.
3. Given a piece of velvet to feel without visual or auditory clues, the student will correctly name the texture.
4. Given the 3-D shape of a pyramid to feel, the student will name it without visual or auditory clues.
5. Given the 3-D shape of a square to feel, the student will name it without visual or auditory clues.
6. Given a rubber ball to feel, the student will name it without visual or auditory clues.
7. Given the 3-D numbers 6, 4, 8, to feel without visual or auditory clues, the student will replace those numbers in order after the order has been scrambled.
8. Given the 3-D numbers 3, 5, 1, to feel without visual or auditory clues, the student will replace those numbers in order after the order has been scrambled.
9. Given a series of textures to feel (velvet, corduroy, and sandpaper, in that order), the student will replace the textures in correct order, without visual or auditory clues, after they have been scrambled.
10. Given a series of 3-D shapes to feel (cube, sphere, rectangular block and pyramid, in that order), the student will replace the shapes in correct order, without visual or auditory clues, after they have been scrambled.
11. Given a series of 3-D shapes to feel (square, triangle, circle, and rectangle, in that order), the student will replace the shapes in correct order, without visual or auditory clues, after they have been scrambled.
12. Given a series of unfamiliar objects to feel for five seconds (ashtray, bottle, eyeglass case, and wall socket plate, in that order), the student will replace the objects in correct order, without visual or auditory clues, after they have been scrambled.

13. Given the 3-D number 6 to feel, the student will select the number from a group of three 3-D numbers, without visual or auditory clues.
14. Given the 3-D number 5 to feel, the student then selects the number from a group of three 3-D numbers.
15. Given a piece of corduroy to feel, without visual or auditory clues, the student selects the corduroy from a series of 3 other objects.
16. Given the 3-D shape, pyramid, presented for 5 seconds without visual or auditory clues, the student will select the pyramid when presented with 3 other 3-D shapes.
17. Given the 3-D shape, square, presented for 5 seconds without visual or auditory clues, the student will select the square when presented with 3 other flat 3-D shapes.
18. Given a toy hammer to feel, without auditory or visual clues, the student will select that object when presented in a series with three other objects.

CLUSTER COMPETENCY TEST

VISUAL CHANNEL

MODULES 1.071-1.094

1. Given a ball and verbal directions to point to the object previously seen, the student will select it from the group of ball, bat, glove, and hat.
2. Given a block and verbal directions to point to the shape previously seen, the student will select it from the group of block, ball, diamond, and pyramid.
3. Given a 3-D circle and verbal directions to point to the shape previously seen, the student will select the shape from the group circle, square, rectangle, and triangle.
4. Given the number 6 printed on a flash card, and verbal directions to point to the number previously seen, the student will select the number from the group 9, 2, 6, 4.
5. Given the symbol + printed on a flash card and verbal directions to point to the symbol previously seen, the student will point to the symbol when presented in the group +, −, =, ∓.

6. Given a sequence of book, pencil, and pen, the student will place the objects in sequence after they have been scrambled.
7. Given ball, pyramid, and block, the student will correctly replace the shapes in order after they have been scrambled.
8. Given a triangle, circle, and square, printed on flash cards, the student will correctly replace the shapes in order after they have been scrambled.
9. Given a sequence of flash cards of the numbers 5, 2, and 8, the student will correctly replace the numbers in order after they have been scrambled.
10. Given a sequence of flash cards of the symbols +, −, =, and ≠, the student will correctly replace the symbols in order after they have been scrambled.
11. Draw a line connecting matching numbers:

4	2
3	9
9	4
2	3

12. Given flash cards and the numbers 1 to 10 and verbal directions to point to the number 5, the student will point to the number 5.
13. Given the number 9 printed on a flash card, the student will point to the number named.
14. Given the verbal directions to write the number 3, the student will write the number using pencil and paper.

CLUSTER COMPETENCY TEST

VOCABULARY, ROTE COUNTING, AND CONSERVATION OF QUANTITY

MODULES 1.11-1.16, 1.21, 1.31

1. Given a drawing of the quantity "full" and the question, "What quantity does this show?", the student says, "full."
2. Given a drawing of the position "in" and the question, "What position does this show?", the student says, "in."
3. Given a series of five drawings showing taller, greater than, shorter, less than, equal to, and verbal directions to point to the picture showing "shorter," the student points to the picture showing "shorter."

4. Given a square on a flash card and the question, "What is this shape?", the student correctly names the shape.
5. Given a drawing of a dime and verbal directions to name it, the student correctly names the money.
6. A) Given two balls of clay in identical form, and the question, "Which has more clay?", the student says, "Neither, they are the same."
   B) After the teacher rolls one of the balls of clay into a hot dog shape, and asks the student, "Why does this piece of clay (pointing to the hot dog shape) have more clay?", the student responds that it does not, that they are both the same.
7. Given the word "night" presented orally, and verbal directions to raise his hand for a time word, the student will raise his hand.
8. Given verbal directions to count to seven, the student will orally count from one to seven.
9. Given verbal directions to count cars out loud and a set of six cars, the student will count from one to six.
10. Given verbal directions to count out five cars from a set of fifteen cars, the student will count five cars.

CLUSTER COMPETENCY TEST

CONSERVATION OF NUMBER AND RATIONAL COUNTING

MODULES 2.011-2.029

1. Given a set of three red blocks with stars on them, three plain red balls, three blue balls with stars on them, and three blue blocks, the student will correctly select the three blue balls with stars when given the verbal directions, "Give me the blue balls with stars on them."
2. Given flash cards of the numerals 7, 2, and 8, and the verbal directions to place the numerals in order from smallest to largest, the student will correctly place the numerals in the order of 2, 7, and 8.
3. Given a set of twelve dolls (three boys in blue, three boys in red, three girls in blue, and three girls in red) and the verbal directions, "Put some things that belong together over here," the student correctly separates one subset.

4. Given three pencils and flash cards of the numerals 1 through 10 with verbal directions to point to the numeral which shows how many pencils, the student correctly points to the numeral 3.
5. Given two sets of four balls each, the student will match all balls from one set with all balls from the other set, demonstrating the concept of one-to-one correspondence.
6. Given a sheet of paper with five cats on one side and six mice on the other, the student will draw a line from the cats to the mice and name correctly which set has more and which set has less.
7. Given three boxes, one containing two objects, one containing five objects, and one containing no objects, and the verbal directions to point to the box with zero objects in it, the student correctly points to the box with zero objects.
8. Given the numeral 0 written on a chalk board with the verbal directions to name the numeral, the student correctly identifies the numeral.

CLUSTER COMPETENCY TEST

FRACTIONAL PARTS

MODULE 2.031

1. Given a third of a circle, and a circle divided into three sections with verbal directions to tell how many of the sections are needed to make a whole, the student will correctly answer three.

CLUSTER COMPETENCY TEST

PLACE VALUE

MODULES 2.041-2.043

1. Given the number 463, and verbal directions to point to the units column, the student will point to the three.
2. Given the number 56 and verbal directions to tell how many ones in the units column, the student will correctly answer six.
3. Given the number 62 and an explanation that there are six tens in the tens column, the student will tell how many ones are in the six tens, when asked.

4. Given the number 6,430 and verbal directions to point to the hundreds column, the student will point to the four.
5. Given the number 363 and verbal directions to tell how many hundreds are in the hundreds column, the student will correctly answer three.

CLUSTER COMPETENCY TEST

ADDITION

MODULES 2.051-2.058

(1) $\begin{array}{r}5\\+\ 2\\\hline\end{array}$ (2) $\begin{array}{r}3\\+\ 6\\\hline\end{array}$ (3) $\begin{array}{r}4\\+\ 3\\\hline\end{array}$ (4) $\begin{array}{r}9\\+\ 2\\\hline\end{array}$ (5) $\begin{array}{r}8\\+\ 5\\\hline\end{array}$

(6) $\begin{array}{r}3\\2\\+\ 5\\\hline\end{array}$ (7) $\begin{array}{r}2\\5\\+\ 6\\\hline\end{array}$ (8) $\begin{array}{r}6\\4\\+\ 4\\\hline\end{array}$ (9) $\begin{array}{r}3\\7\\4\\+\ 6\\\hline\end{array}$ (10) $\begin{array}{r}9\\2\\5\\+\ 4\\\hline\end{array}$

(11) $\begin{array}{r}13\\+\ 5\\\hline\end{array}$ (12) $\begin{array}{r}22\\+\ 7\\\hline\end{array}$ (13) $\begin{array}{r}10\\+\ 3\\\hline\end{array}$ (14) $\begin{array}{r}11\\+\ 5\\\hline\end{array}$ (15) $\begin{array}{r}12\\+\ 13\\\hline\end{array}$

(16) $\begin{array}{r}15\\+\ 83\\\hline\end{array}$ (17) $\begin{array}{r}87\\+\ 12\\\hline\end{array}$ (18) $\begin{array}{r}35\\+\ 31\\\hline\end{array}$ (19) $\begin{array}{r}17\\+\ 6\\\hline\end{array}$ (20) $\begin{array}{r}14\\+\ 7\\\hline\end{array}$

(21) $\begin{array}{r}25\\+\ 9\\\hline\end{array}$ (22) $\begin{array}{r}35\\+\ 8\\\hline\end{array}$ (23) $\begin{array}{r}12\\+\ 9\\\hline\end{array}$ (24) $\begin{array}{r}17\\+\ 15\\\hline\end{array}$ (25) $\begin{array}{r}25\\+\ 19\\\hline\end{array}$

(26) $\begin{array}{r}99\\+\ 66\\\hline\end{array}$ (27) $\begin{array}{r}87\\+\ 23\\\hline\end{array}$ (28) $\begin{array}{r}173\\+\ 9\\\hline\end{array}$ (29) $\begin{array}{r}285\\+\ 18\\\hline\end{array}$ (30) $\begin{array}{r}396\\+\ 254\\\hline\end{array}$

(31) $\begin{array}{r}121\\+\ 999\\\hline\end{array}$ (32) $\begin{array}{r}133\\+\ 9\\\hline\end{array}$ (33) $\begin{array}{r}976\\+\ 13\\\hline\end{array}$ (34) $\begin{array}{r}888\\+\ 44\\\hline\end{array}$ (35) $\begin{array}{r}125\\+\ 137\\\hline\end{array}$

(36) $\begin{array}{r}987\\+\ 235\\\hline\end{array}$ (37) $\begin{array}{r}36\\+\ 51\\\hline\end{array}$ (38) $\begin{array}{r}27\\+\ 50\\\hline\end{array}$ (39) $\begin{array}{r}13\\+\ 24\\\hline\end{array}$ (40) $\begin{array}{r}35\\+\ 14\\\hline\end{array}$

ANSWER KEY

ADDITION

MODULES 2.051-2.058

(1) 7
(2) 9
(3) 7
(4) 11
(5) 13
(6) 10
(7) 13
(8) 14
(9) 20
(10) 20
(11) 18
(12) 29
(13) 13
(14) 16
(15) 25
(16) 98
(17) 99
(18) 66
(19) 23
(20) 21
(21) 34
(22) 43
(23) 21
(24) 32
(25) 44
(26) 165
(27) 110
(28) 182
(29) 303
(30) 650
(31) 1120
(32) 142
(33) 989
(34) 932
(35) 262
(36) 1222
(37) 87
(38) 77
(39) 37
(40) 49

CLUSTER COMPETENCY TEST

SUBTRACTION

MODULES 2.061-2.067

(1) 9 − 7	(2) 5 − 2	(3) 7 − 4	(4) 8 − 2	(5) 5 − 1
(6) 15 − 3	(7) 19 − 5	(8) 27 − 2	(9) 38 − 7	(10) 29 − 17
(11) 57 − 34	(12) 99 − 36	(13) 45 − 31	(14) 12 − 9	(15) 23 − 7
(16) 38 − 9	(17) 41 − 5	(18) 98 − 79	(19) 55 − 46	(20) 77 − 28
(21) 44 − 27	(22) 391 − 7	(23) 516 − 106	(24) 274 − 95	(25) 875 − 776
(26) 703 − 274	(27) 535 − 149	(28) 831 − 145	(29) 400 − 265	

ANSWER KEY

SUBTRACTION

MODULES 2.061 2.067

(1) 2
(2) 3
(3) 3
(4) 6
(5) 4
(6) 12
(7) 14
(8) 25
(9) 31
(10) 12
(11) 23
(12) 63
(13) 14
(14) 3
(15) 16
(16) 29
(17) 36
(18) 19
(19) 9
(20) 49
(21) 17
(22) 384
(23) 410
(24) 179
(25) 99
(26) 429
(27) 386
(28) 686
(29) 135

CLUSTER COMPETENCY TEST

MULTIPLICATION

MODULES 2.071-2.076

(1) 4 × 2	(2) 5 × 6	(3) 4 × 4	(4) 9 × 3
(5) 11 × 8	(6) 23 × 3	(7) 19 × 1	(8) 12 × 4
(9) 36 × 7	(10) 17 × 6	(11) 25 × 5	(12) 37 × 3
(13) 42 × 13	(14) 20 × 36	(15) 10 × 10	(16) 67 × 11
(17) 301 × 9	(18) 169 × 49	(19) 472 × 248	(20) 713 × 4
(21) 1624 × 395	(22) 72 × 444	(23) 51 × 30	(24) 9 × 9

ANSWER KEY

MULTIPLICATION

MODULES 2.071-2.076

(1) 8
(2) 30
(3) 16
(4) 27
(5) 88
(6) 69
(7) 19
(8) 48
(9) 252
(10) 102
(11) 125
(12) 111
(13) 546
(14) 720
(15) 100
(16) 737
(17) 2709
(18) 8281
(19) 117,056
(20) 2852
(21) 641,480
(22) 31,968
(23) 1,530
(24) 81

CLUSTER COMPETENCY TEST

DIVISION

MODULES 2.081-2.087

(1) 6 ÷ 3
(2) 4 8
(3) 10 ÷ 5
(4) 1 4
(5) 16 ÷ 1
(6) 5 20
(7) 9 18
(8) 6 24
(9) 7 21
(10) 6 19
(11) 8 35
(12) 7 48
(13) 11 22
(14) 13 39
(15) 12 60
(16) 10 70
(17) 2 426
(18) 3 303
(19) 11 121
(20) 178 716
(21) 11 1463
(22) 1 13
(23) 7 14
(24) 1 1
(25) 13 17
(26) 17 36
(27) 12 28
(28) 11 19

ANSWER KEY

DIVISION

MODULES 2.081-2.087

(1) 2
(2) 2
(3) 2
(4) 4
(5) 16
(6) 4
(7) 2
(8) 4
(9) 3
(10) 3r.1
(11) 4r.3
(12) 6r.6
(13) 2
(14) 3
(15) 5
(16) 7
(17) 213
(18) 101
(19) 11
(20) 4r.4
(21) 133
(22) 13
(23) 2
(24) 1
(25) 1r.4
(26) 2r.2
(27) 2r.4
(28) 1r.8

ARITHMETIC GLOSSARY

Addend: numbers to be added.

Algorithm: some special process of solving a certain type of problem; any standardized procedure for the solution of a particular type of problem.

Borrowing: used in subtraction to increase a figure in the minuend by ten ones units, and making up for it by decreasing the next larger denomination by one.

Carrying: used in addition to rename a figure in the sum by decreasing the figure by ten ones units and making up for it by increasing the next larger denomination by one.

Classification: a systematic arrangement in groups or categories according to established criteria.

Conservation of Number: the construction of one-to-one correspondence between two sets of objects conserving the correspondence.

Conservation of Quantity: a concept proposed by Piaget belonging in the concrete operational stage. The child has the ability to determine two equal quantities as equal when the perceptual image shows the quantities as unequal.

Difference: the result of subtracting one quantity from another.

Dividend: the given product into which the known factor is divided in order to find the missing factor (quotient).

Divisor: the known factor which is divided to find a missing factor (quotient).

Expanded notation: a system of figures used to represent an entire number, with the figures represented by different units of place value with the denomination written beside each figure.

Fundamental facts: those facts in addition, subtraction, multiplication, and division which the student should know immediately upon presentation of the problem; mastery of these facts are advantageous for other skills.

Minuend: the quantity from which another quantity is to be subtracted.

Multiplier: a number by which another number is multiplied.

Number line: a line in which points are given number names.

One-to-one Correspondence: a correspondence between two sets A and B in which each element of A is paired with one element only of B and conversely.

Place Value: the value given to a digit by virtue of the place it occupies in the number relative to the units place.

Product: the result of multiplication.

Quotient: the result of division.

Rational Counting: matching the number names to the objects in a set to determine the number of elements in a set.

Regrouping: the process of renaming numbers in place value units. This can be done either by decreasing the figure by ten and increasing the next larger denomination by one (carrying for addition), or by increasing the figure by ten and decreasing the next larger denomination by one (borrowing for subtraction).

Remainder: the number left over when dividing into equal groups.

Rote Counting: naming successive numbers in order without reference to any set; purely a rote-type of memory counting.

Set: a collection of objects or numbers.

Seriation: process of ordering a series by length.

Skip Counting: naming numerals where a consistent integral is missed between each name.

Sorting: a group set up on the basis of any common characteristics.

Subtrahend: a quantity to be subtracted from another quantity.

Sum: the quantity obtained by adding two positive quantities.